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ISSUE**

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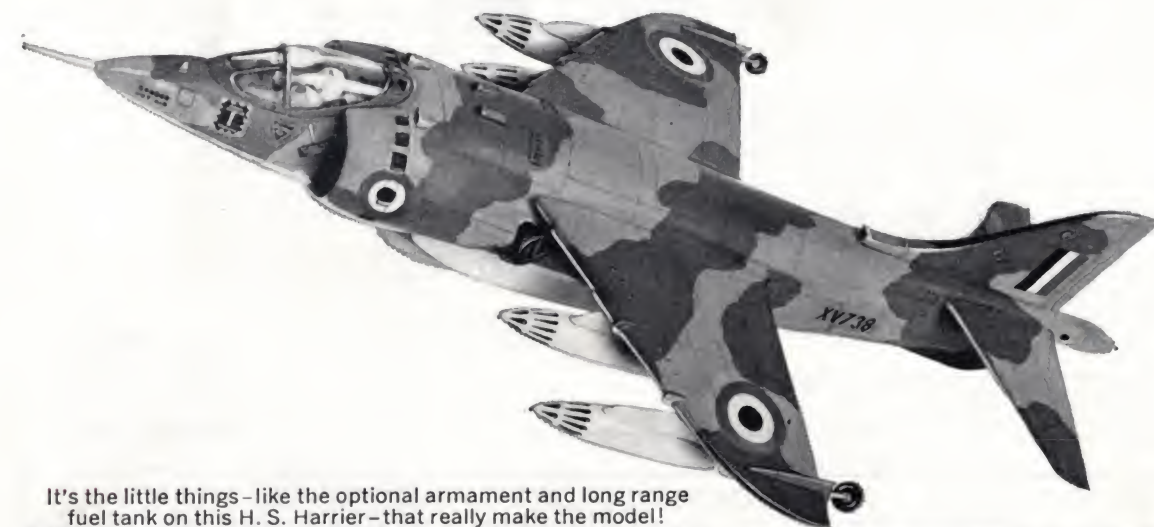
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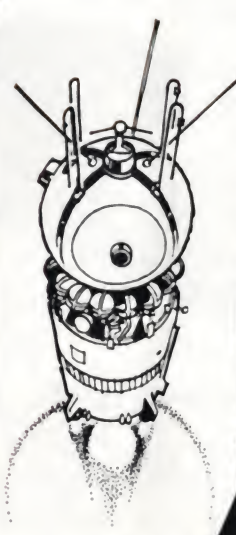
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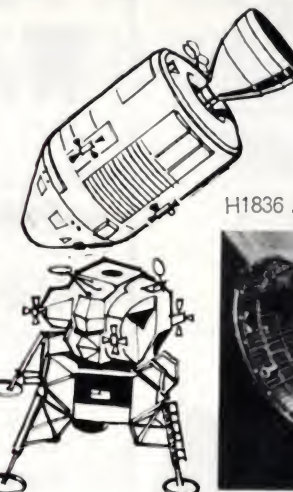
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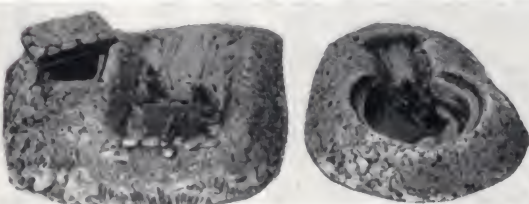
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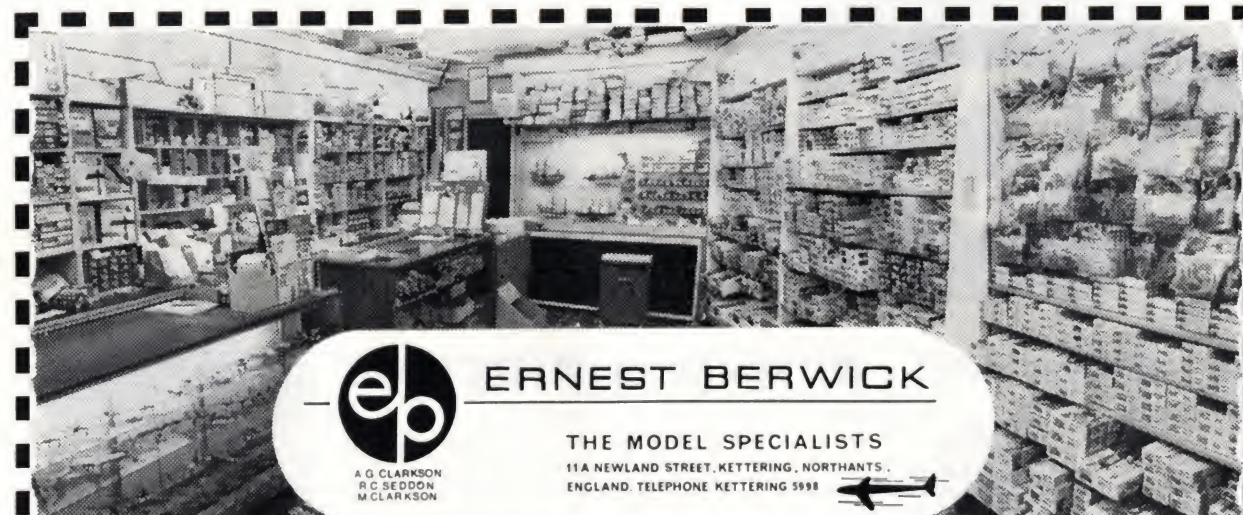
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AIRFIX magazine FOR PLASTIC MODELLERS

April 1970

Volume 11 No 8

Editor Chris Ellis

Cover Picture

An excellent view of a USAF F-4D Phantom of 36th Tactical Fighter Wing photographed at Bitburg Air Force Base, Western Germany, a few months ago. The picture should be useful to modellers since it shows the numerous stencil markings and warning signs on the nose as shown in the drawing of a 431st TFW aircraft in this issue on page 376. Note also the distinction in shade between the two greens in the camouflage scheme. The blue and white shield on the fuselage side is a 'stick on' plastic sheet emblem of the 4th Allied Tactical Air Force, TAC Weapons Team, figures 1969, with a large stylised '4' in the centre, '19' and '69' in the upper corners, 'ATAF' above the '4' and 'TAC Weapons Team' round the lower edge of the shield. Note that the inside of the nosewheel door is painted red as a visual warning for ground crew, as are some of the other flaps on this aircraft which open at or near head height, and are liable to be operated during ground servicing.

(Photograph by Richard E. Gardner)

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THE Short Skyvan STOL transport, which for several years has made little progress in overseas sales, has suddenly taken a new lease of life. Recent orders announced by the company bring the total for this versatile mini-freighter/light feeder-line aircraft to 35 for 23 operators in five continents.

The first of the new orders came on January 21 with the decision of the Delaware Air Freight Company of Wilmington to purchase a Skyvan to operate over routes in the Boston to Baltimore corridor embracing both New York and Washington—meeting the need for ultra-short scheduled freight services in major metropolitan areas.

Only two weeks later the Skyvan won its first sale to a major international airline with the announcement on February 3 that the Greek flag carrier Olympic Airways was ordering two aircraft for routes linking Athens and the other main Greek airports with small islands in the Aegean.

Part of the plan of development of the islands as holiday resorts is to link them by air to trunk-route services. Their terrain, small size,



and quiet 'away from it all' appeal, militate against the construction of long runways for conventional aircraft. For Olympic, therefore, the choice was between VTOL with helicopters or STOL from short strips.

Olympic Airways, which is owned by Mr Aristotle Onassis, has specified accommodation for 18 passengers. Its two Skyvans which will be delivered in April are to enter service in time for this year's tourist season.

Short's Skyvan Divisional Manager Mr Alex Roberts said after the sale, 'We are delighted to have Skyvan adopted by a big international airline after finding our first 22 customers among smaller operators, military services and corporate users. Many other main airlines have small aircraft feeder operations such as that Olympic is setting up. Heartened by this Greek acceptance we'll be pressing Skyvan's virtues on them. Olympic's choice of Skyvan bears out contention that an aircraft originally conceived for bulky freight makes, with proper furnishing, a spacious and comfortable passenger aircraft'.

One of the major reasons for the Delaware Freight Company's choice of the Skyvan was that it is the only third-level aircraft with the combination of STOL performance and big easy-loaded freight volume. Its hold is more than twice as big as that of its nearest competitor—780 usable cubic feet—and it is the world's largest light



Above: Hawker Siddeley 748 G-ASJT, seen in Smiths Instruments colours at Staverton before being sold to Mintech to become XW750 and part of the RAE Farnborough fleet of experimental aircraft.



Top: The second Boeing 747 airline to operate in and out of London's Heathrow airport was Trans World Airlines. Here N91303 is being loaded at the Cargo Terminal during the first proving flight which arrived on the night of Friday, February 6. **Above:** The British prototype of the SA330 Puma, XW241 during trials at Westland's Yeovil factory. The first aircraft will go to A & AEE Boscombe Down shortly and the initial course of trainees should be flying the type at RAF Wittering, Northants, in November. aircraft. Delaware Air Freight Company's fleet at present comprises a variety of light passenger aircraft stripped for freighting. The addition of an aircraft optimised for bulky freight with a full-width rear door will enable it to fly consignments it was previously unable to accept and is expected to lead to a big increase in traffic volume. The aircraft was delivered in February.

Far East demonstration

To spearhead a strong sales drive among military services of several nations, Short's have equipped a new Skyvan demonstrator aircraft as a definitive light tactical transport. Incorporating a host of military features already installed in the first military Skyvans now in service with the Austrian Air Force and other features entirely new to the type, the military demonstrator left on a nine-week sales tour of the Far East and Middle East during February.

Cleared to operate at 13,500 lb gross weight—1,000 lb greater than the limit of the civil Skyvans now in service around the globe—the Skyvan 3M demonstrator is the first Skyvan to carry weather radar, a Bendix RDR-100 whose scanner is mounted behind a radome on the nose. Other features include a port-side blister window for an air dispatcher; two anchor cables for parachute static lines; a guard rail beneath the tail to prevent control surface fouling by static lines; inward facing paratroop seats with safety nets; parachute signal lights; mounts for NATO-type stretchers; and roller conveyors for easy loading and para dropping of palette-mounted supplies. The aircraft carries its own lightweight vehicle loading ramps and has the one-piece military door which leaves the fuselage threshold entirely clear for appendages.

The military demonstrator will operate with the newly approved 30 degree flap setting for take-off which enables Short's STOL aircraft to make even shorter take-offs than the present 840 ft full load still-air ground run.

Among the variety of tactical roles foreseen for the Skyvan 3M are paratrooping and supply dropping, assault landing, troop transport, casualty evacuation, staff transport and the carriage of vehicles and ordnance. It carries 22 equipped troops: 16 paratroopers and a dispatcher; 12 stretcher cases and two medical attendants or 5,000 lb of freight.

The Skyvan 3M demonstrator is equipped to display all these roles. It is flying directly to the Far East for a sales tour which will progress westward and will arrive back in Belfast in mid-April. Leading the Short's team is Skyvan Area Sales Manager and Battle of Britain veteran Michael Ingle-Finch.

Right: Latest Royal Navy ship to enter service equipped to operate helicopters is the RFA Green Rover, one of a new class of small fleet replenishment vessels. Stores can be transferred by air while the vessel also refuels another ship under way, but the anti-submarine helicopter potential is also apparent.



Thames Heliport planned

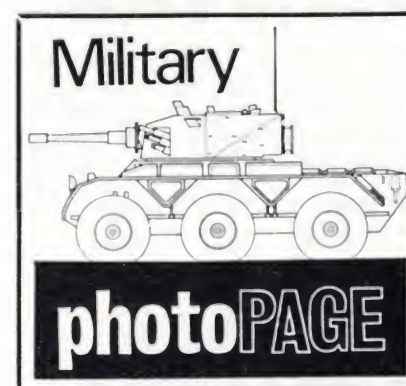
A new heliport should soon be in operation in the heart of London. Mr Alan Bristow, Chairman of the newly formed British Helicopter Advisory Board, has said that subject to Greater London Council approval a site by the old St Katherine Dock could be in use within three months. This temporary arrangement would probably be replaced in about 18 months' time by a floating platform on the Thames just downstream of Waterloo Bridge on the south bank, allowing the dock to be properly developed. The Board believes its noise trials have convinced the Planning Authorities that most modern machines are acceptable. 'The average helicopter', according to Mr Bristow, 'makes no more noise than the traffic on Westminster Bridge'. The floating heliport would be 300 ft by about 80 ft and linked to the shore by a bridge. This would provide parking, refuelling and flying control facilities for private and charter operations.

HS 748 at Farnborough

The first Hawker Siddeley 748 to wear RAF roundels will shortly be flying as part of the experimental aircraft fleet at RAE Farnborough. This aircraft formerly belonged to Smiths Instruments Ltd, was registered G-ASJT, and previously flew from Staverton, near Cheltenham.

Farnborough's new aircraft, which is the first turbo-prop type to be operated by the Royal Aircraft Establishment, arrived on January 13 after purchase by the Ministry of Technology. It will retain the basic colour scheme used when in Smith's service but will have the previous owner's marks and the civil registration over-painted and the serial XW750 added.

When in service the Hawker Siddeley 748 will replace a Varsity at present being used for navigation and automatic landing trials. In place of the normal seating arrangements the forward half of the fuselage is packed with instrumentation. In a rear compartment 12 of the original conventional passenger seats are retained and the aircraft will be used for passenger flying as and when necessary. Fitted for two-crew operation the 748 has already been used for experimental flying though it has very low engine and airframe hours.



Above, left: Reader D. Millett sent us these rare views of early experiments with 'dumbell' type fascines with a Mk VI light tank in 1937. These were carried on the back of the tank and the vehicle crossed the trench backwards. **Above, right:** Pictured at the same time is a Light Tank Mk IV as featured in our May 1969 'Military Modelling' article. Number is T1369 and the A Sqn marking is white. As Mr Millett points out, these were used only by training units by 1940. **Left:** Rare view of a Deacon actually in service at the time of Alamein comes from L. J. Archer. Sand colour overall, it has the red/white/red RAC flash on the side and what appears to be the 1st Armoured Division sign on the mudguard. Number is on the front.

Part 10: Vehicles in enemy service

A NUMBER of carriers captured at Dunkirk or during the fighting in the Western Desert were taken into service by the Germans and Italians for their own use, many being altered for specific roles. The Japanese also captured a few carriers and used them against their former owners.

German

Official German designation of the Bren/Universal Carrier as listed in the *Captured Foreign Equipment* manual (*Fremden Gerats, Kraftfahrzeuge*) was:

Gepanzerter MG Trager Br 731 (e) (gp MG Tr Br 731 (e)): The same designation with the number 732 was applied to the Scout Carrier. There was no differentiation between the Bren or Universal Carrier, both types being called 'Bren Carrier' in German.

Mun Schl Bren (e) (Munition Schlepper): This was the British carrier (of any type) adapted as an ammunition or supply tractor. Many were used by the German occupation forces in France from 1940 on.



Mun Schl Bren fuer MG 08 (e): This version had a Maxim machine gun Model '08 fitted on a pedestal mount in the front compartment. It was mainly used for airfield defence by the Luftwaffe.

Le Felad Tr Bren (e): This was a Bren or Universal Carrier converted to a remote control explosive carrier. The superstructure removed and the hull was covered over, the interior being packed with explosives and fitted with radio control gear.

Schneeschaufel auf Bren (e): Carrier converted to Snow Plough with superstructure removed and a small plough attached to the front of the vehicle. It was used by the German Army, and also by the Luftwaffe for clearing runways.

3.7 cm Pak auf Fahrgestall Bren (e): This was the conversion of the carrier to a self-propelled motor for the 3.7 cm anti-tank gun. Only a few were so converted. The gun and shield were mounted on the engine behind the front compartment.

Italian

Carriers captured by the Italians in the Western Desert were frequently used against their former owners, the only changes to the carrier being the fitting of Italian weapons.

Cingioletta Fiat 2800: Built by the Italian firm of Fiat in 1942, this vehicle was a direct copy of the Universal Carrier.



Top: One of the Universal Carriers converted to a 'light tank' by the Japanese, seen guarded by an Indian soldier after recapture at Singapore in 1945. **Above:** 3.7 cm Pak auf Fahrgestall Bren (e) saw limited German service.

The superstructure, suspension and tracks were identical to its British counterpart, the armour thickness on the Italian version being slightly thicker. The Italian-built vehicle weighed 4.76 tons and carried a crew of two. It was powered with a 66.5 bhp engine, and attained a speed of 60 km per hour. Armament carried was a Breda 38 machine gun fitted in a ball mount in the front machine gun housing. It was not accepted by the Italian Army.

Japanese

A few carriers were captured by the Japanese at Singapore, Hong Kong, and elsewhere in 1941-42. One or two of these are known to have been converted to rudimentary light tanks by plating over the superstructure. A crude turret was built centrally towards the rear with a hinged raised cupola and a machine gun. Driver and front gunner occupied their usual positions. These vehicles were used in action; others, unconverted, were used as supply carriers.



Above: The Italian-built Fiat 2800 (Imperial War Museum photos).

AIRFIX magazine

Miscellaneous British Conversions

Carrier fitted for Wading: In preparation for the Normandy landings, it was necessary to improve on the carriers' low wading height of only 2 ft 3 in. Carriers issued to the main assault divisions were therefore given heightened superstructure by the simple expedient of fitting on supplementary armour plates, these being held in place by metal bars or rods that were inserted through brackets that had been welded to the carrier and to extra plates.

All joints and orifices were sealed with waterproof compound and the engine was waterproofed. The wading height was now brought up to approximately 5 ft so that the carriers could go ashore from landing craft with a much reduced risk of swamping. The driver had to be conned by the commander for this operation but once ashore the front supplementary plate was removed to give normal view. This conversion was also used in other theatres of war.

Carrier fitted with Cable Laying Equipment: Some carriers were fitted with Cable Laying Equipment, the mechanical cable layer being mounted on the engine compartment, and the spare cable drums stowed at the rear of the vehicle. One carrier adapted for cable laying was used to lay cable across the Irrawadi river during the bridgehead battle in January 1945. The vehicle was fitted with empty petrol drums to achieve buoyancy. These vehicles were used by the Royal Signals.

Carrier with Assault Bridge: This improvised device was initiated in the UK in 1943 as a method of transporting anti-tank equipment quickly across small rivers or streams. The carrier was waterproofed and trackway from 'Raft Anti-Tank Gun' equipment was used. Two wooden spars were lashed to the top of the hull of the carrier and on top of the spars were positioned two sections of trackway. A further two sections of trackway were hinged to their front ends and supported at an angle of 45° by two cables attached to the rear of the vehicle. The carrier was driven into the river or stream and the raised trackway lowered.

Military Modelling

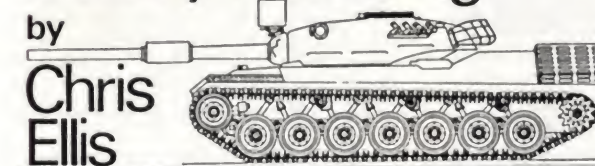
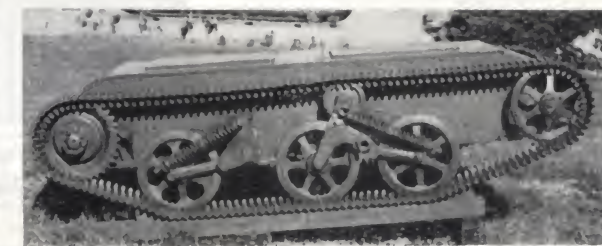


ILLUSTRATION opposite of the captured Universal Carrier converted to a rudimentary 'tank' by the Japanese gives us a good excuse to feature this unusual vehicle as a model based on the Airfix carrier kit. This should be useful to wargamers, too, since there is a scarcity of suitable tank models for miniature Japanese forces. Structurally this is quite an easy conversion, though nonetheless it requires care. Start by assembling the complete kit less mudguards and steps. The slots for the latter must be filled with plastic scrap or body putty and later filed smooth. The Stacey tow bar is also omitted, and the gun port in the superstructure front is cut away to full depth.



Above, left: Schneeschaukel auf Bren (e) showing snowplough on front. **Above, right:** Universal Carrier in Italian service after capture in Western Desert in 1942. **Right:** Mun Schl Bren fuer MG 08 (e) showing pedestal mount for Maxim gun. **Below:** Le Felad Tr Bren (e) remote control demolition tank. Note radio aerial in top. All variants shown here would make easy conversions for the Airfix kit (Axel Duckert photos).



Above: Two views of the completed models show all salient features described. **Foot of page:** Models before painting showing plastic card parts in white.

Then cut plastic card to shape to fit over the front barrette, and a full width piece to cover the front compartment as shown. This is just cemented at the edges. The rear edge should be 2 mm shorter each side than the front edge. Cut out the sliding hatch before this part is cemented. It can be cemented in place open or closed—it slid sideways—with a runner from Microstrip. Cement a 3 mm strip of the latter transversely over the engine compartment, 10 mm from the

Continued on page 369

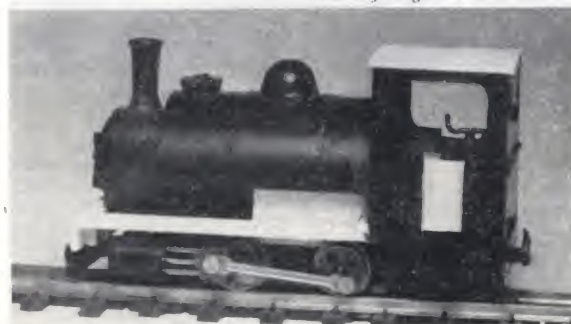


Narrow gauge locomotive

THE motivation behind the narrow gauge locomotive described this month was to attempt to produce an alternative 'anglicised' body for the Minitrains 0-4-0T saddle tank. The Minitrains locomotive is deservedly popular amongst narrow gauge railway modellers. It has a number of features to commend it, so many in fact it is difficult to place them in any particular order but suffice it to say that it is a good reliable and solid worker, it is precision made and possesses a wealth of detail and considering its high standard it is remarkably inexpensive. No wonder then, at least one specimen is usually to be seen on most narrow gauge layouts at exhibitions and in illustrations in the model railway press. Perhaps it was this very familiarisation that led me to seek something different.

The Minitrains model depicts a Davenport locomotive of 1914-18 vintage and is a beautiful one-piece plastic moulding with every detail crisp and clear in outline. The cab would be just about perfect for a model of *Lyn* the 2-4-2T built by Baldwin for the Lynton and Barnstaple Railway and I did at one time consider making a *Lyn* style body but unfortunately the wheelbase and wheel diameter of the Minitrains chassis is not suitable. The Minitrains body is in fact so nicely made I could not bring myself to hack it about so I decided to leave it severely alone and look elsewhere for my material. Removal of the Minitrains body is easily accomplished by undoing the screw found midway between the chimney and

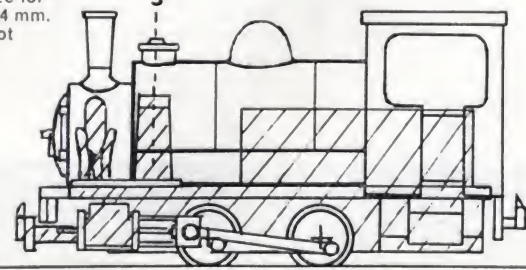
Heading: The narrow gauge conversion on the right compared with the standard Airfix Pug tank engine. **Below:** The completed conversion prior to painting and mounted on the Minitrains chassis. **Right:** Working drawing for this simple model has Minitrains chassis shaded. 'S' is fixing screw.



BY NORMAN SIMMONS

bell on the top of the boiler. On the chassis the body fixing screw screws into a brass mounting fitted to the top of a pylon moulded on to the chassis floor. The chassis is particularly neat being an assembly of metal and plastic parts. The 5-pole motor and gearbox occupy the rear half but their overall height is low allowing a number of body styles to be considered. The forward half of the chassis above the footplate level is occupied solely by the pylon which takes the body fixing screw and the bulb for the forward headlamp—yes, anyone who hasn't inspected a Minitrains locomotive will no doubt be as sur-

Full size for model 4 mm. to 1 foot



prised as I was to find it has a working headlight. Either the pylon or the headlight could of course be removed if you really needed the space but I did not find it necessary for my conversion.

Airfix 'Pug' 0-4-0 Saddle Tank body parts form the basis of this conversion. This is not the first time the Airfix 'Pug' has been adapted to narrow gauge modelling. I described a Festiniog *Welsh Pony* style model using 'Pug' parts mounted on a Playcraft Decauville chassis in the June 1969 edition of the AIRFIX magazine and David Davidson made extensive use of the 'Pug' in his non-working model inspired by Tallylyn locomotive No 1 in the May 1969 issue.

Construction of my alternative Minitrains body began with the cab, the Airfix 'Pug' providing the material for the front, back and two sides. The steps were removed from the sides and a 7 mm long section was cut and removed from each forward side sheet and from the top arch, thereby reducing the overall length of the sides to 18.5 mm. I retained the Airfix plastic handrails but these could of course be removed and replaced by wire. To strengthen the sides a strip of plastic card 16 mm x 10 mm was cemented behind each side across the cab entrance to represent cab doors. The cab doors should be raised at least 1.5 mm above the bottom level of the sides to clear the Minitrains chassis which at this point forms the cab floor.

The back and front parts of the cab were reduced in width to 22 mm by cutting 2 mm wide strips from the edge at each side. The complete firebox inside the cab was carefully removed from the cab front and put to one side. The firebox later sees service at the other end of the boiler as the smokebox! The firebox opening in the cab front was then enlarged to clear the Minitrains motor. The buffers were removed from the buffer beam below the cab rear. The four parts of the cab were then assembled and checked for fit on the Minitrains chassis. The sides and rear fit outside the edge of the chassis floor. The Airfix cab roof can be suitably cut down to fit but the rather thick edges look a little out of place on a model of this size and I found it best to make my own cab roof out of 20 thou plastic card.

Next, the two boiler halves (Airfix parts 8 and 8A) were cemented together and, when the cement had set, two sections were removed; the rear one 3.5 mm long

and the forward one 7.5 mm long. The forward section, it will be noted, includes the chimney. The chimney was carefully parted from the boiler top and kept to one side for use later on. After removal of the front and rear sections the remaining part of the boiler assembly which includes the dome and water tank filler was turned lengthwise through 180 degrees so that the water tank filler came at the front end and the dome at the rear end. With this accomplished a hole was drilled in the bottom of the boiler to clear the body fixing screw pylon and a section 15.5 mm long was removed from the bottom of the boiler at the rear end to enable it to clear the motor. It will probably be necessary as it was in my case to trim the openings with a craft knife and file to enable the boiler to fit easily on the chassis.

The boiler was then cemented to the cab front. When cementing any body parts together make sure they do not come into contact with the Minitrains chassis until the cement has set, since the polystyrene cement will adhere to the chassis if you are not careful. With the boiler and cab assembled it was then found possible to box-in the opening around the motor with 5 mm wide strips of plastic card. I used substantially thick material such as 40 thou card to lend added support to the structure.

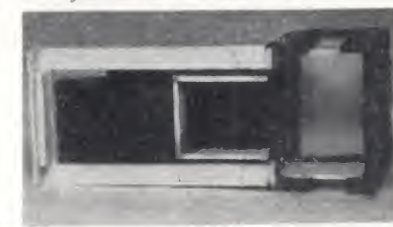
It will be noticed at this stage that the water tank filler sits immediately above the pylon used for the body fixing screw. This was intentional as it was intended that a body fixing screw, somewhat longer than the existing Minitrains screw, should be inserted through the body in the same way, but in practice it has been found that the new body is such a glove fit on the chassis that it 'adheres' sufficiently well for the completed model to be picked up safely by hand holding the body only. Should, however, a screw be found necessary a 10 BA screw about 1/4 inch long would be suitable.

After assembly of the boiler and cab came the smokebox. As mentioned earlier I used the firebox removed from inside the cab front. It was necessary, of course, to remove the firebox back plate fittings and

I also filed away the pronounced slope to the sides to make the sides vertical. Luckily there is enough material at this point. It will be seen that the firebox-cum-smokebox very conveniently fits over the headlamp bulb although it may be necessary as it was in my case to tidy up the wires and to cut two small grooves in the rear part of the smokebox to clear the wires and so enable the smokebox to fit close to the floor. Next came the boiler front (Airfix part No 9) and the smokebox door was carefully removed. The door itself was filed at the back to reduce the thickness and cemented to the smokebox front (which was at one time the firebox backplate!). The remainder of the boiler front, namely the arched front to the saddle tank, was cemented to the boiler assembly and the smokebox was in turn cemented to it. Once again care was taken to avoid getting cement on to the chassis although the parts had to be offered up to each other frequently while the cement was drying to ensure that they were assembled correctly. The chimney was then cemented in place.

Assembly is virtually complete at this stage although there are a number of detail fittings one can add. I decided to fit a footplate to the front and sides. This I cut from one piece of 60 thou plastic card and overall it measured 24 mm wide and 42 mm long with the centre removed to clear the chassis leaving a footplate about 4 mm wide round the front and both sides. The footplate could be cemented directly to the Minitrains chassis but I wanted to make both my locomotive bodies interchangeable.

Below: Underside view of the completed body shows how a plastic card 'box' is fabricated to conceal the motor.



Military Modelling—from page 367

front, and cement in place a further plate from the front coaming to this, again 2 mm narrower each side than the width of the compartment. Add a further 3 mm strip of Microstrip at the rear, sloping forward at 45° and with the ends cut off for 2 mm at a 45° slope. Then add a further plate covering the rear half of the compartment, and complete by cementing shaped sloping side pieces in place. For the crude turret I cut 9 mm from the bottom of an old Bic ball-pen cap and filed the stub of the clip to make a mantlet. A disc of plastic card fractionally larger than the turret made a turret ring, with a pin for a pivot. An old T-34 road wheel filed flat and scored across its diameter made an excellent hatch. The armoured machine gun jacket was a 6 mm length of scrap filed to a point.

Lastly, new mudguards were added from thick paper and a template for these was given in the September 1969 issue, page 17. Painting was dark green with light earth streaky random patches. The Marines anchor was hand-painted in white.

The second conversion is the Australian-built Carrier, Machine Gun, Local Pattern No 1, as illustrated on page 170, December 1969 issue. Chassis is built up as in the kit, omitting the tow bar. Cut away the steering box before cementing the superstructure front in

place, then get the effect of the steep glacis plate by cementing a 3 mm wide strip of plastic card between the upper splash rail and the superstructure front. The front bulkhead is cemented in place with the part behind the driver cut down to the level of the sides, as seen in the upper model picture. The engine casing and left side *only* are cut to slope to the rear, a diagram for the shape being given on page 17 of the September 1969 issue. Plastic card is used for new sloping rear faces for engine and left hand compartments. A stowage locker fits on the right side, made from two T-34 stowage boxes with the rims filed down. The locating slot on the right hull must be filed off before these are put in place. A sloping top for the locker is from plastic card. Across the chassis rear is placed a stowage rack on supports (from Microstrip) 3 mm high. Beneath this in the centre, place a scrap square of plastic as a battery. In the centre at the front of the rack goes a 6 mm x 4 mm plate with two lengths of Microstrip from the engine to depict the battery lead channels. The model is completed with headlamps, pick and shovel on the left side, a Vickers machine gun from stretched sprue, new mudguards, and a rolled tarpaulin (from paper) on the rear stowage rack. Finish in all pictures I've seen is dark green with no numbers.



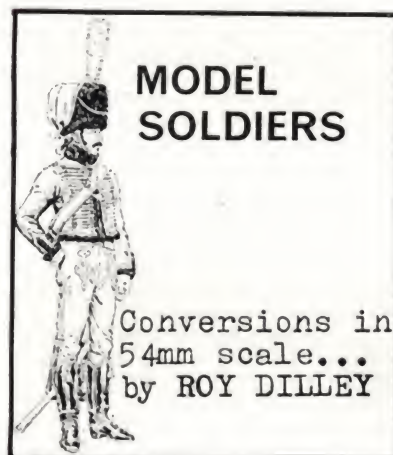
Above: Completed model painted and numbered. While freelance, it has typical characteristics for British narrow gauge lines.

able so I cemented the footplate to the front of the cab at the rear end and to the bottom front edge of the smokebox at the forward end. There is not a lot of area on which to attach the footplate so I added some small square fillets of plastic card at the joints to strengthen them. This way both bodies are interchangeable and even the Minitrains ballast weight can be made to fit. To change one locomotive for the other is therefore only a matter of seconds.

Detailing a body such as this can be left to the individual but such items as handrails, whistle, roof ventilators, toolbox, etc., can be fabricated from wire, plastic sprue or plastic card. Buffers can also be fitted as they are to Tallylyn locomotives and a front buffer beam of distinctive shape may also be considered. At this point I might mention the rear coupling. This item can be prised loose from the Minitrains body without damage to either coupling or body and the square hole on the Airfix 'Pug' rear buffer beam is conveniently placed to be enlarged to take the stem of the Minitrains coupling. Whether it was good luck or judgement I don't know but I found it possible to make the hole just the right size to accept the coupling as a push fit so that it can be removed and replaced in the Minitrains body if and when it should be required. Alternatively, narrow gauge couplings can be purchased as a Peco accessory and it might be more satisfactory to fit one of these as a permanent addition to the body. The front coupling is fitted to the Minitrains chassis so the problem does not arise at the front end.



Above: The three inexpensive conversions dealt with in this article, all based on standard Airfix Motor Racing figures in 1:32 (54 mm) scale. They are shown, front and rear, from left in order of description and complexity. Note that much of the success comes with skilful painting—lead figures purchased in this scale might cost as much as £15 each painted to this standard of finish.



PLASTIC figures available to the converter in 54 mm scale fall, as a general rule, into two categories—rigid and flexible. The former are made from 'hard' plastics such as polystyrene and cellulose acetate, whilst the latter, the so called 'un-breakable' models are manufactured from polyurethane or PVC.

Under the 'Rigid' heading can be grouped the following:

- Airfix Motor Racing figures
- Airfix 'kit' figures; ie, those contained in vehicle kits as drivers or crew
- Historex range
- Revell 'kit' figures
- Monogram 'kit' figures
- Minimodels (Tri-ang)

The main 'Flexible' types are:

- Britains
- Timpo (Model Toys)
- Airfix 54 mm Military Figures
- Crescent
- Charbens

By and large, the rigid plastics present few problems in terms of 'working', that is cutting, filing, cementing, etc, and pieces can be interchanged and swapped about within the classification without difficulty.

The flexible plastics are not so amenable to adhesives or filing, but they can be worked very satisfactorily, and I propose to devote future articles to this type of material in which many most attractive and well designed figures are currently being manufactured.

To begin with however, let us examine

some conversions that I have made from an inexpensive range of hard plastic figures, the Airfix Motor Racing set of Track Officials and Spectators. This set contains twelve miniatures, and provides the basis for some simple yet to my mind very satisfying figures worthy of display alongside much more. It is also adaptable to a number of different periods of military dress, and at only 2d—3d per basic figure is ideal for the newcomer to converting, who can try out his ideas and techniques without undue expense. The set consists of:

1. Man wearing Duffel Coat
2. Child standing
3. Programme Vendor
4. Camera man
5. Father seated
6. Mother seated
7. Driver standing
8. Driver sprinting
9. Mechanic with lapboard
10. Mechanic with Petrol Can
11. Mechanic bending over
12. Mechanic kneeling

I have given them numbers for easy reference in the working details.

The tools that I have used for these conversions are those normally employed in plastic modelling, that is, small craft knife, razor saw, assorted files, emeryboards (borrowed from my daughter's manicure box) for fine finishing, and three types of adhesive, tube polystyrene cement, UHU cement, and Mekpak liquid cement. Use has also been made of plastic card of various thicknesses, and plastic putty or bodyfiller, together with the odd metal head from the Rose Models 'B' list of accessories, an excellently designed and produced range. All the conversions are straightforward and suitable for beginners, yet they result in authentic and original models, in their own right. Because of the periods chosen the painting details are not too exacting. As the series of articles progresses, however, I shall be dealing with more complex conversions, involving more elaborate details of stance, clothing and equipment.

Conversion 1

This is for a British Staff Officer 1914-18 wearing 'British Warm' overcoat (Fig 1). Basic figure required No 1, Man in Duffel Coat.

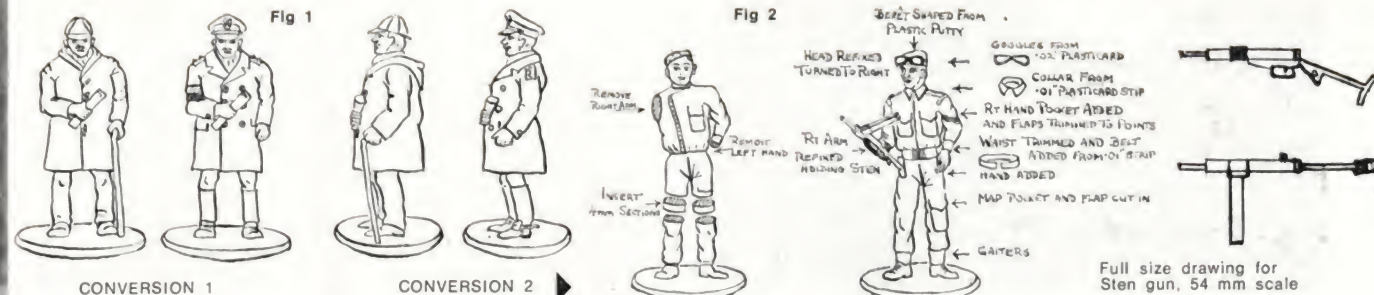
Remove the walking stick and trim the duffel coat in front to form a double-breasted effect with two rows each of three

buttons. Cut new, deeper lapels by careful use of the craft knife and files, remembering the notches in each lapel. Make a small groove in the left chest to represent the opening of the breast-pocket. The rear of the duffel coat will then need to have the hood removed and considerable trimming to make the waist, with another groove cut in to show the centre-vent from hem to waist. Shoulder straps are also cut in to complete the overcoat. The trouser legs are now smoothed down, and shaped to represent field or riding boots, and short lengths of heat-stretched sprue fitted into holes drilled in the heels for spurs. Next flatten the top of the deer-stalker hat and file it into a flat cylinder for the band of the cap. At this stage saw a slot in the forehead, and cement in a piece of plastic card (.020 inch). Smooth this down to the shape of the peak. Finally add a blob of plastic putty to the top of the cap, and when it is thoroughly dry sand it down to form the cap brim. Check that all operations have been carried out satisfactorily, and the piece is ready for painting.

Conversion 2

This makes a Lance-Corporal, 5th Coldstream Guards, in France, Summer 1944, with Sten gun. Basic figure required is No 7, Driver standing. See Fig 2 for details.

Since this is to represent a Guardsman, and the basic piece is rather short-legged, it is possible to give height to the figure by lengthening the legs. This is done by severing both legs at mid-thigh, and rejoining them with polystyrene cement, having inserted a cylindrical section of plastic 4 mm thick between the two cut ends of each leg. When this operation has completely set, and been smoothed down, remove the driver's helmet and hand from his left arm. Cut the right arm, including hand, carefully away from the body, and put to one side. Now trim the front of the body to represent a single breasted battle dress jacket, and scribe in another pocket on the right breast to match that on the left. The flaps of these pockets should be pointed, another alteration that can easily be carried out with the sharp knife. Carve the waist, so that the bottom edge of the jacket is raised by approximately 3 mm, and cement a strip of .01 inch plastic card 2 mm



wide round the waist for the belt. Remove the head completely, and cement it on again turned slightly to the right, adding a blob of plastic putty which when dry is shaped down to form the beret.

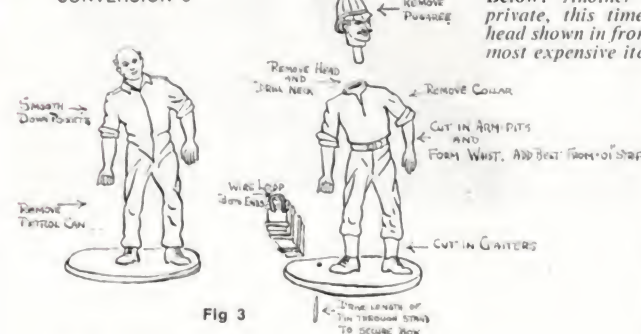
'Goggles' are shaped from .02 inch plastic card, and cemented to the front of the beret, filling in at each side with plastic putty if necessary. Then cut the shoulder-straps into the jacket, and apply another short strip of 2 mm plastic card around the neck to form the collar, the points of which should be flat against the jacket front. The bottom of each trouser leg should now be filed smooth, and shaped back to the ankle to indicate gaiters. Having trimmed and sanded the cutting marks from the right arm, this is cemented back on to the body, but brought more forward from its original position, and a Stengun, made up from scrap plastic and a strip of plastic card is cemented into the hand, its butt to rest on the right hip of the figure. Now replace the left hand with one cut from another figure (the one I used was taken from No 9, the mechanic with lapboard) and trim it to fit, carefully scribing in the fingers with the point of the knife. Check the work and once again you are ready to paint.

This is a useful exercise in altering a figure's height, the same technique being used to reduce height, except that the necessary amount is removed from each leg section before re-cementing. The goggles on this figure, not common on infantrymen, come about because 5th Coldstream was a motor battalion within the Guards Armoured Division.

Conversion 3

This is for a Private, 24th Foot, Rorke's Drift, Zululand, 1879 in fatigue dress with ammunition box. Basic figure required is No 10, Mechanic with petrol can, plus Rose Models' head with old style Wolsley helmet.

CONVERSION 3



First remove the petrol can from the figure, being careful to leave sufficient plastic on the hand to form the gripping fingers. Also take off the head and drill out the neck ready to receive the spigot of the metal head in due course. Trim and smooth out the trouser bottoms to form the gaiters. It should be noted that gaiters at this period came somewhat further up the calf of the leg than those of World War 2 vintage, such as we dealt with in Conversion 2. Now remove the pockets from the upper body, being sure that you do not cut too deeply into the chest, and cut a 'waist' allowing the shirt to bulge out over it slightly. A 1.5 mm wide strip of .01 inch plastic card can now be applied round the waist to form the leather belt. The knife should also be used to cut away the arm-

COLOUR DETAILS

Conversion 1

- Cap: Khaki, with scarlet band and gold badge.
- Overcoat: Pinkish-beige, with dark brown 'leather' buttons.
- Brassard (Armband): Red over black.
- Breeches: Pale Khaki.
- Boots and gloves: Brown 'leather' (ie, gloss brown paint).
- Spurs: Steel.
- Scarf: Pale Khaki.

Conversion 2

- Beret, jacket, and trousers: Khaki, with red shoulder titles, lettered white.
- Goggles: Grey (rubber) with silver lenses.
- Belt and gaiters: Khaki-green.
- Boots: Black, semi-matt.
- Sten gun: Bluish-black.
- Rank badges: Off-white. (DOUBLE stripes to represent Guards L/Cpl.)
- NB: Paint miniature Guards Armoured Divn formation sign between stripes and shoulder titles on each arm

Conversion 3

- Helmet: Pale buff (represents 'dirty' white, or 'tea-stained').
- Shirt: Pale blue-grey.
- Trousers: Dark blue, with thin red stripe down outside seam.
- Gaiters: Semi-matt black.
- Boots: Semi-matt black.
- Ammo box: Mid-grey, with white lettering, 'WD' and broad arrow.

Below: Another view of the 24th Foot private, this time with the Rose Models' head shown in front as purchased. This is the most expensive item.



pits of the figure, and give more definition to the upper arm. Cut sharply in a 'V' shape (see photograph) and be careful to avoid rounding off the armpit. As the Army's 'grey-back' shirt of those days was collarless, trim round the neck of the figure and remove the moulded collar flap.

At this stage select a suitably sized box; I used one from the Merit OO scale set of packing cases, but one can easily be fabricated from plastic card or scrap, as long as it is made hollow. Put the lid on one side, and with a $\frac{1}{16}$ inch drill make two holes at each end of the box, just under the top cross straps (see diagram). Through these holes thread a length of 13 amp fuse-wire to form the rope carrying loops, and twist the ends of the wire together inside the box to prevent them pulling out. The lid is then cemented back into place with UHU cement as the Merit boxes are made from polythene and are not responsive to polystyrene cement. Hollow out the figure's right hand to receive the carrying loop.

Having ascertained the correct position by fitting the box on its end with one carrying loop over the right hand, drill the base of the figure to take a length of household pin. Drive the pin up through the stand and into the box, fixing box, pin and stand together with UHU cement, the same adhesive being used also to fix the carrying loop to the hand. Whilst all this is drying out, using great care, file off the moulded pug-garee (or folded cloth) from the metal head, leaving the plain unadorned helmet shape. Smear the spigot of the head with UHU, and insert it into the hole previously drilled in the neck of the figure. Make sure that enough of the spigot protrudes to form a natural looking neck, and turn the head slightly to the left, giving the whole figure a pleasing, well-balanced appearance. Allow at least 24 hours for the adhesive to set really hard, before smoothing down and painting. I think that this piece exactly captures the appearance and 'feel' of a man dragging a heavy load.

Each of these conversions has involved a different exercise, from the simple cutting and trimming of conversion 1, through the more elaborate removal and replacement of parts in conversion 2, to the mating of several different materials in conversion 3. I am sure that your imaginations will already be at work on other interesting adaptations of the Airfix set of which we have only studied three pieces, and perhaps in a future article we can examine some more of these excellent miniatures.

Next time I shall be discussing the 'Flexible' type of figure and its conversion possibilities.



Rolls-Royce with driver examining his map, Western Front, 1915; a view of the completed model. For another model picture see page 377.

ROLLS ARMoured CAR, 1914

Conversion for 1:32 scale military collectors

BY D. J. McHENRY

THE Admiralty Turreted Rolls-Royce of the 1914 era became one of the best known armoured cars ever manufactured by a British firm. The production model design was finally completed after negotiations with the Air Department in a hope to design a better armoured vehicle than the earlier 'open' type armoured cars, such as the AEC B type armoured truck on an ex-bus chassis.

The Rolls-Royce was finally designed by Flight Commander T. G. Hetherington and Squadron Commander Briggs. It saw action during the first world war in 1915, East Africa, the Dardanelles and in T. E. Lawrence's desert campaigns against the Turks.

Minor modifications were made on the cars according to their own theatres of war. For example, T. E. Lawrence's cars all had double wheels front and rear to cope with the extremely rough desert terrain. They also removed the roof plates so that the conditions inside would be made more bearable. Other modifications were made for different fighting zones such as the addition of an extra commander's cupola on the turret roof. Other than this no other major modifications were made right up to 1920 when new plans were drawn up for a totally improved armoured car. It turned out however that the so-called improvement was almost identical to the old 1914 pattern save an extra inch to the turret height and the addition of disc wheels.

As far as the model is concerned I omitted the rivets and I still found that the character of the vehicle had not been marred in any way. If any modeller thinks I am taking a non-perfectionist attitude this can be rectified by the modeller himself by employing thin plastic sheet of the same dimensions of the armour plate embossing from the inside with a pin and then sticking this to the basic plate. Two Airfix 1911 Rolls-Royce kits are required and also one Bentley for this conversion.

CHASSIS AND BONNET

Begin by removing the coachwork from the chassis and the bonnet on parts 1 and 2. Take special care when cutting near the rear leaf springs. The photograph of the separate pieces when cut should clear up any difficulties which may arise. Part 4, the chassis and mudguard assembly must have the mudguards and running boards removed. This is achieved by using a razor saw very carefully (see photograph of the separate parts again).

The louvres and rivets on the bonnet sides must be filed off at this stage and the radiator positioned. The radiator is not a perfect fit and so it must be trimmed down to size matching the bonnet. With

this done, thin plastic card is glued on top of the bonnet and radiator. (See drawing 11).

In this model there are only three top bonnet hinges and three side hinges but I have seen photographs of cars with four bonnet top hinges and three side hinges. It seems that there was some variation on many fittings on all Rolls-Royce cars whilst on active military service.

Part 19 (the front springs and axle assembly) is cemented in place and a chassis strengthener 19 mm long is inserted slightly forward of the radiator bottom. I made the strengthener from part of the steering column. To this the lower frontal armour is attached. Drawing 8 gives the pattern.

Radiator armour (drawings 6 and 7) with hinges outermost, are glued to the radiator sides. (Do not attach the starting handle at this stage as it is liable to break off during construction).

THE WHEELS

At first these posed quite a problem. The 1914 Admiralty cars all had wire wheels and only in 1920 did they change to the disc type. Not wanting to use 'under-sized' Bentley wheels, I decided to take drastic action and use an improvised lathe and trim down the Bentley tyres.

First bolt on an 8 BA nut and bolt and attach to a hand-drill as shown in the photograph. On the original Rolls wheel, the twelve spokes are removed and when the Bentley wheel is of the same diameter the Rolls tyre is clipped on. Further trimming will remove any unsightly plastic. For the rear wheels double tyres are needed, so just add extra 'de-spoked' Rolls tyres to the new rear wheels.

DRIVING AND FIGHTING COMPARTMENT

When you have reached this part of the conversion I would advise that all the photographs be consulted. This will make your comprehension much easier. Drawing 9 shows the base and top of the fighting compartment, which is glued 17 mm behind the bonnet. The driver's side armour (drawings 4 and 5) is now cemented in place and parts 1 and 3 are now positioned. Part 2 lies flat on top of 1 and 3. The photographs will make this clear. The side of the compartment (drawing 13a and 13b) is next put in place. Note that the square vision port faces forward. The small hole is the location hole for the spare wheel which is made in the same way as the others, except that a hole must be drilled in the Bentley wheel (part 34) so that a bolt can be slotted through for turning on the improvised lathe. The back of the fighting compartment is quite easy to produce; the curvature simply follows that of drawing 9 and is 26 mm high.

The rear exit doors are quite easily made by taking a length of card 38 mm long and 26 mm high scoring it vertically down the middle and glueing it in place. A handle can be added to the offside door.

The compartment top is next (drawing 9) and a location hole for the turret pin must first be drilled. The driver's visor follows drawing 10, and I found that the slits can be made by using a heated pin at the curved ends and then by cutting along the visor length and trimming a perfect vision port can be obtained.

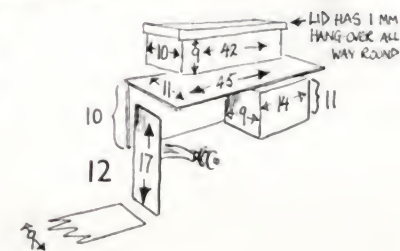


The improvised lathe made from a hand drill is a handy dodge for tasks like reducing wheel or tyre diameters as is necessary for the Rolls conversion. Several previous articles have mentioned it. Here the arrangement is well shown with the drill handle clamped to a chair arm. Wheel is held in the chuck (at right) by a bolt, and a file or craft knife is used for trimming while the drill is rotated. (Photos by D. Buckoke).

AIRFIX magazine



Above: The kit parts shown before and after removal of the original coach work, and with chassis trimmed down (see text). Right: Sketch of stowage box construction, not to scale. Dimensions are marked in millimetres.



THE TURRET

By drawing circles 41 mm in diameter on $\frac{1}{8}$ inch balsa sheet and laminating them together a basic turret is obtained. I would advise any modeller to clamp the laminates together at least overnight. Carefully sand down and constantly check the diameter. The bevelled sides are shown in diagram 11 (viewed from the front). By using a razor saw the bevelling is not too difficult. The Lewis gun port is cut out (it need not be very deep) and a hole drilled big enough for an empty Biro tube. The tube must have a projection of 10 mm. The muzzle is simulated by a trimmed down piece of plastic scrap which is 2 mm long and .75 mm in diameter. Grain shows up easily but with careful filling and sanding (with sanding sealer or dope and talcum) a smooth finish can be achieved. An alternative is to cover the wood turret with thin card, glueing with contact adhesive such as UHU.

A commander's hatch 15 mm in length and 14 mm in width is positioned 7 mm from the front of the turret face. A pin or thin nail must be fitted centrally in the turret base so that the turret can revolve 360°.

REAR STOWAGE BOXES

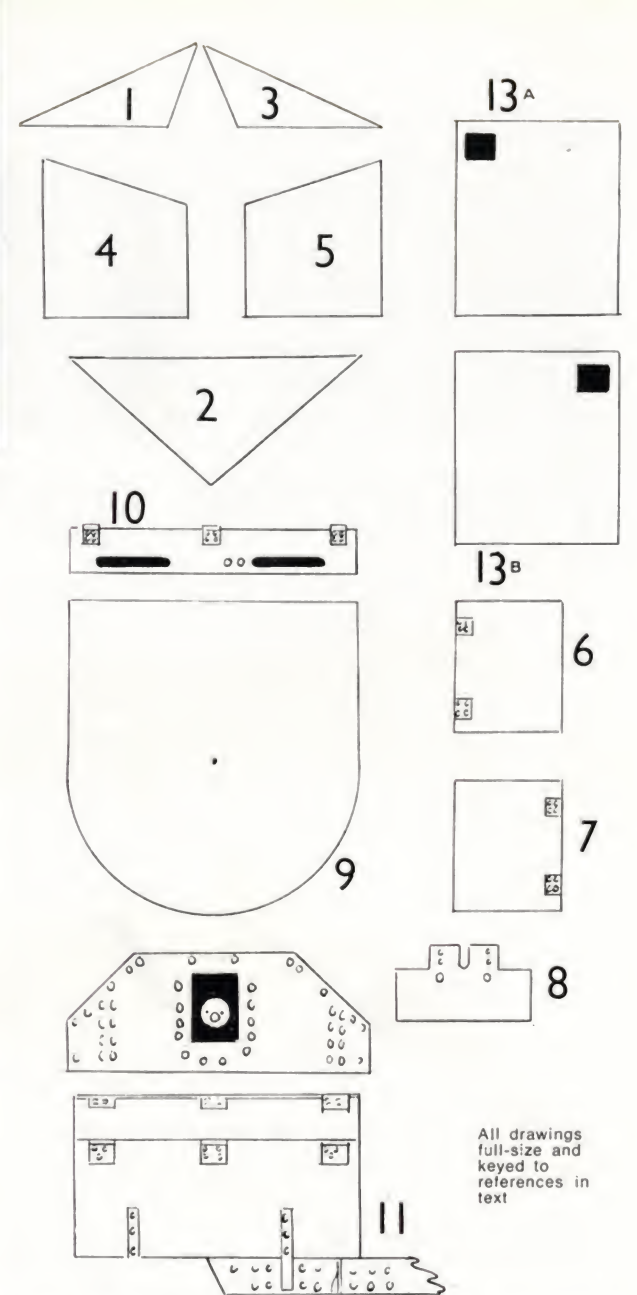
The sketch shows the basic construction itself and if you consult the photographs whilst building there should be no problems. Note that the offside has a smaller box which is 38 mm long, 7 mm high, and 8 mm wide. A rear flap door is now added, 29 mm wide and 11 mm high. The thickness should be two sheets of 30 thou plastic card. Two vertical straps 1.5 mm wide are both positioned 2 mm in from each side of the flap door. Below this and underneath the rear floor is another box (not used as such). This is 34 mm wide and 14 mm high by 5 mm deep. On to this another box is fitted below the flap door. This, centrally placed is 25 mm wide, 12 mm high and 6 mm deep. This was not always fitted so an available space of 34 mm by 14 mm is quite feasible.

Running boards 63 mm long and 9 mm wide are attached as indicated in the sketch. They are held in place at the front by pieces of right-angled stretched sprue cemented to the chassis side and the underneath of the running board 6 mm from the front.

FRONT MUDGUARDS

These are the original rear ones but are made 10 mm wide by adding thin plastic card to the basic mudguard. They are attached by parts 77 and 78 of the 'Ole Bill' bus kit and lower down, level with the chassis, straight pieces of stretched sprue will hold the mudguard in place.

April, 1970



All drawings full-size and keyed to references in text

Lamps are the original (part 9) and are cut from the existing assembly. Bentley headlamp shields (parts 16 and 17) are placed on the front of the Rolls lamps. Mounts, 8 mm by 2 mm are previously glued to the mudguard tops.

PAINTING

Colour schemes varied with the type of country in which they were used. Normally service green was used in the United Kingdom but green with brown and dark grey (or variations of this theme) were used in war-time European theatres; and sand with or without charcoal and black (or pale blue-grey) were used for desert camouflage. Dazzle camouflage was also used in fairly regular patterns. The colours consisted of yellow ochre, red-brown, blue and dark green (similar to the early tanks of this period). The tyres are light grey and the spokes are picked out with silver over a black backing.

I should like to acknowledge my thanks to the Curator of the Royal Armoured Corps Tank Museum, Bovington, for much helpful information in my research for the writing of this article.



Phantom quartet

Colour schemes and details for the Airfix kit

Presented by Joseph T. Thompson

THE Airfix kit of the F-4B Phantom II lends itself to numerous colour scheme variations and simple conversions which require but little alteration from the basic kit. Four such suggested schemes are given here, all featuring US service machines.

The most complicated, because of its marking scheme, is the F-4J used by the US Navy Flight Demonstration Team, the *Blue Angels*. The actual structural change is relatively simple. Simply build the kit following the instruction sheet but delete the IR (infrared) sensor from under the nose. Fill the locating hole for this with

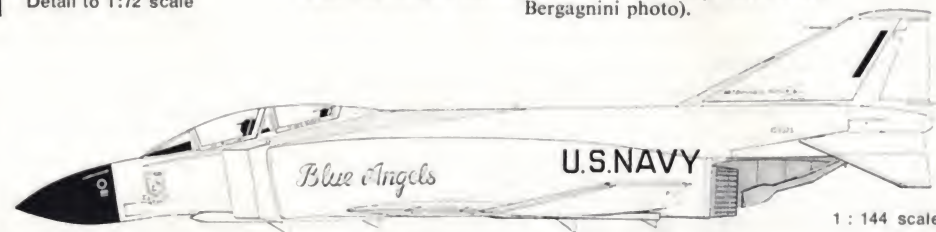
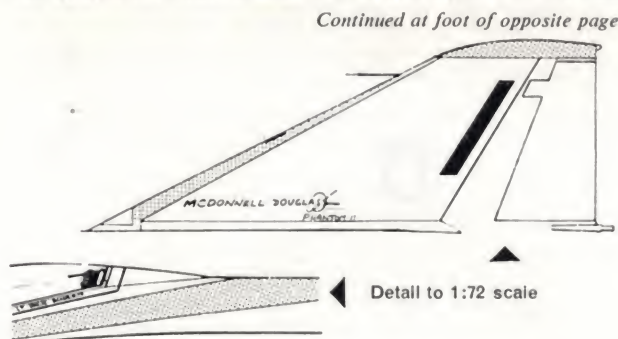
**All drawings
by Richard E. Gardner
from author's
research material**



'Blue Angels' badge detail

Upper segment: blue background, white cloud, black aircraft.
Lower segment: yellow background, gold Navy wings and scroll
lettered CHIEF BASIC NAVAL AIR TRAINING COMMAND in blue.
Shield outline: yellow.
Scroll: yellow with blue lettering.

Heading picture: A fine view of the lead plane of the 'Blue Angels' Flight Demonstration Team, as drawn here, running up on the runway prior to take-off. Note the gloss finish and how the 'US Navy' lettering under the wings is carried over the undercarriage doors (Peter Bergagnini photo).



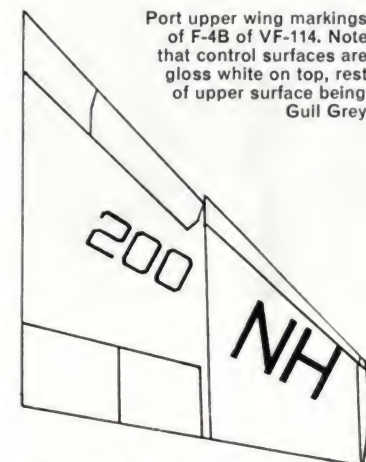
F-4J 1-153075, lead plane (No 1) of 'Blue Angels' Flight Demonstration Team

Colour notes: Overall finish very high gloss medium blue with fin cap, stabiliser (tailplane) tips, and all lettering high gloss yellow. All leading edges on wings highly polished natural metal. Dummy Sparrow missiles (forward) painted high gloss medium blue, and (aft) high gloss yellow. Lettering on cockpit canopy sills reads CDR BILL WHEATS (forward) and LT DICK SCHRAM (rear cockpit). The radome is very highly polished dark blue, slightly darker than rest of airframe. The tailplane areas immediately aft of the jet orifices are burnished natural metal (see photos). Fuselage aft of orifices and orifices themselves are also natural metal, darkened by exhaust stain (black/brown). Entire airframe virtually free of maintenance stencils. McDonnell-Douglas emblem carried in yellow on tail. Extreme tip of radome is silver.

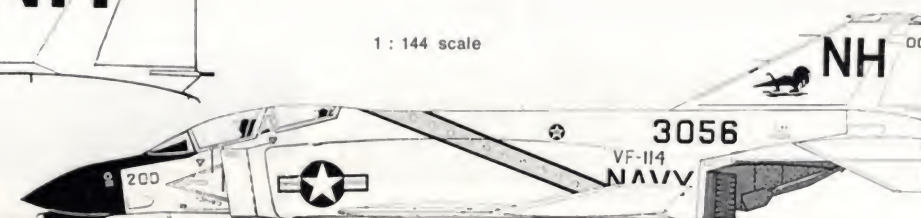
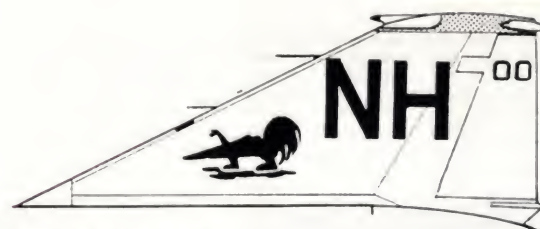
Colour mixes: For High Gloss Medium Blue use Humbrol No 15 with small amount of Humbrol 22 mixed in. For radome colour use Humbrol No 15. For High Gloss Yellow use Humbrol No 8.

Sparrow missiles on *Blue Angels* aircraft are dummies with smoke and colour dispensing systems added for aerobatic display purposes. White smoke is created by spraying light weight oil from a pipe into the engine exhaust stream. The oil is carried in two containers made to resemble Sparrow missiles mounted in the fore and aft missile wells. Each dummy Sparrow in the rear well contains liquid dye. Red dye in the left tank is plumbed to the left wing fuel dump port located in the trailing edge. The blue dye in the right tank is similarly fed to the right wing. Smoke and dye switches have been added to the engine throttles in the cockpit.

Interior and detail colours: Nose gear, wheel wells, and oleos, are glossy Insignia White. Inside of wheel well doors are light blue grey except for nose doors which match rest of airframe. Cockpit is Dark Gull Grey, seats are black, and seat backs are green/brown. Seat straps are dirty white.



Detail to 1:72 scale



F-4B of USN Squadron VF-114, Commander Air Wing 11, USS 'Kittyhawk'

Colour notes: Basic airframe as for VMFA-122 aircraft, (next page) with all control surfaces glossy Insignia White. Fin cap red-orange (vermillion). Fuselage band red-orange with black border. Stars each side of fuselage are coloured white, red, yellow, blue, orange, green, white, red, yellow, blue, orange, from top to bottom. Air Wing 11 badge on fuselage side is a white star on a black disc, two dice showing scores of 6 and 5 being featured in the centre of the star. Aardvark emblem on tail is red-orange standing on black base, faces forward each side. Lettering on canopy sill (front cockpit) port side only reads CDR M. D. ARNOLD in black. Lettering on port side jet intake reads KLINE ADJ-3. All other lettering matt black as drawn. Tips of ECM pods on tail fin are glassy blue and areas adjacent are natural metal. Note also two black square areas on rudder.

This aircraft has slotted leading edges to tailplane. For wing marking, see detail drawing.

More drawings, notes, and pictures next page

Humbrol body putty and when dry sand smooth. At the same time sand the radome tip to a slightly sharper point. This will also remove the slight indentation which the kit moulding has here.

Of course, the main problem with this model will be applying the markings since at the present time there are no commercially available transfers. Any modeller lucky enough to have kept in his spares box the decal sheet from the old Revell 1:48 scale Tiger in *Blue Angels* markings will have no trouble since the lettering can be used direct on the F-4J model. Those who aren't so lucky will have to paint by hand direct to the fuselage, or else paint the wording on clear transfer sheet and apply this in the normal way. The wording is reproduced here to 1:72 scale as a guide for tracing. The 'U.S. NAVY' and the tail number also present problems. Letraset/Blick sheets of yellow lettering can be pressed into service if you live near enough to a large stockist to be able to match the style without buying 'on spec', but the stylised under-wing lettering will need to be either hand painted or made up letter-by-letter either from yellow Blick striping or strips cut from yellow transfer sheet, such as is made by Yeoman/Hales. In short this conversion is much more a test of lettering and finishing skill than it is of structural alteration.

For anyone who seeks markings less taxing of skill, the other three alternatives are easier since almost all the necessary lettering, insignia, etc, can come from the kit or from readily available transfers like those from Almarks or Modeldecals. The Marines and second Navy machines are F-4Bs made directly from the Airfix kit, while the USAF F-4D needs only the deletion of the IR sensor once more from beneath the nose. This model can be enhanced by the addition of the gun pod on the centre-line mount, as shown in the pictures, and the fitting can be made easily from one of the F-4B wing tanks provided in the kit. The drawings show how to do it. All the checkers, bands, emblems, etc, needed for these three aircraft can be made up by cutting from solid transfer sheet, hand painting, or carefully adapting existing transfers. More precise details on the colouring and marking of each machine is given with each drawing. Since the main drawings are to 1:144 scale it is a simple matter to double all dimensions to arrive at 1:72 scale for positioning, etc. The great size of the Phantom precludes reproducing all these drawings to 1:72 scale in the limited space available, but certain details are reproduced to the larger scale and indicated as such.



Above: F-4B of VMFA-122 seen at the Marine Corps Air Station, El Toro. This machine is marked identically to that drawn below, though the code and callsign is, of course, different. Note '16' instead of '1' on nose. Other big difference is the radome which on this aircraft is in tan natural fibreglass, patched with black, rather than matt black as on aircraft drawn (Peter Bergagnini photo).



1 : 144 scale

F-4B of USMC Squadron 122 (VMFA-122)

Colour notes: Undersides, upper control surfaces, oleo legs and struts, and wheel bay interiors are glossy Insignia White. All upper surfaces, (except where already noted) are Light Gull Grey. Radome semi-matt black and anti-glare panel matt black. Fin cap, sword on fuselage and wing tanks, canopy sill, all mid blue. Lettering matt black. Cockpit interior Dark Gull Grey with black seats, orange seat cushions, sage green seat backs. All leading edges are natural metal, and fuselage and tailplane areas adjacent to jet orifices are natural metal stained by exhaust. Tips of wing tanks natural metal. Walkways on fuselage (above jet engines) and on wings are all Dark Gull Grey (see photo). Tip of nose radome silver and tip of IR sensor dark glassy blue. All blade antennae are Dark Gull Grey and anti-collision light on leading edge of fin is red. Canopy sill, port side, lettered LT COL L. J. MILLER below front cockpit in white. Code letters on starboard side of fin are positioned differently (see photo). No codes are carried on upper wing of USMC Phantoms.

Below: F-4D of 431st Tactical Fighter Wing as drawn below. The camouflage pattern on this aircraft is almost exactly similar to that of the 36th TFW F-4D shown on this month's cover in colour and it is useful to study the cover picture in conjunction with the drawing. Note the red/white squadron checks on the fin which are repeated on the fuel tank on the inboard pylon. Note also the centreline 20 mm gun pod and Falcon air-to-air missiles on the starboard inboard pylon (Peter Bergagnini photo).



Above: F-4B Phantom II of VF-114 'Aardvarks' pictured at Naval Air Station Miramar, Calif. Compare with drawing on previous page. USN aircraft have code markings on port upper wing, not carried by USMC aircraft in this position—see detail drawing on previous page. Gloss white control surfaces show up very clearly in this view. Note multiple and triple bomb racks on wing pylons. This machine is the personal mount of Cdr M. D. Arnold, Commander of Air Wing 11. (Peter Bergagnini photo).



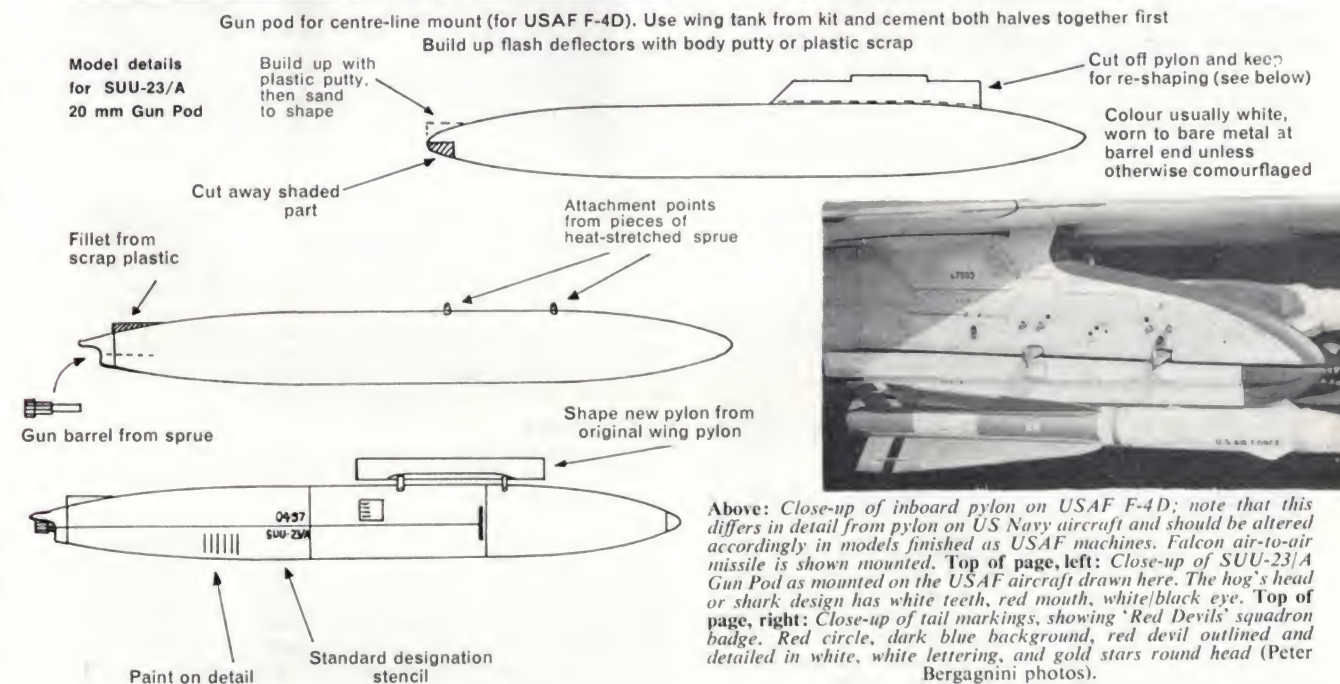
1 : 144 scale



Nose stencils on this aircraft are same as those shown in detail on cover picture

F-4D of 431st Tactical Fighter Squadron, USAF ('Red Devils') George Air Force Base

Colour notes: Machine is finished in standard USAF camouflage pattern—see Modeldecalsheet No 3 for full pattern. Colours are Light Grey FSC-36622 (undersides), OD Green FSC-34102 (medium shading), Tan FSC-30219 (light shading), and Dark Green FSC-34079 (dark shading). Fuselage and tailplane areas adjacent to jet orifices are natural metal, darkly stained aft of jet pipes. Fin cap is coloured in red and white checks. Radome is dark brown and cockpit canopy framing is outlined in silver gasket tape. Small national insignia (ministars) are used, those on the fuselage lacking blue borders. Turbine band round fuselage (through minstars) is red. For tail badge detail and colours see photo. Tips of wing tanks are natural metal. Small medal ribbon is painted in port jet intake.



Above: Close-up of inboard pylon on USAF F-4D; note that this differs in detail from pylon on US Navy aircraft and should be altered accordingly in models finished as USAF machines. Falcon air-to-air missile is shown mounted. Top of page, left: Close-up of SUU-23/A Gun Pod as mounted on the USAF aircraft drawn here. The hog's head or shark design has white teeth, red mouth, white/black eye. Top of page, right: Close-up of tail markings, showing 'Red Devils' squadron badge. Red circle, dark blue background, red devil outlined and detailed in white, white lettering, and gold stars round head (Peter Bergagnini photos).



By coincidence, receipt of D. J. McHenry's article on the Rolls-Royce armoured car (page 372) was followed a day or two later by these pictures from Belgian reader Jacques van den Haute of Brussels. Shown upper left is a Rolls-Royce of 1914 converted almost exactly as described by D. J. McHenry, but enhanced with rivet detail and rubber-tyred wire spoke wheels taken from another model car. This model is finished to depict one of the Duke of Westminster's cars in Arabia. It was one of about fifty 1:32 scale military models of 1914-18 which were exhibited by M. van den Haute and some friends at the Anderlecht Cultural Centre during Remembrance Week last November. One of the dioramas, featuring Rolls-Royce tenders and an armoured car at Siwa Oasis, is shown lower left. Another model from the exhibition, a 1914 Belgian Minerva, also made mainly from Airfix parts, is shown above.



NEW BOOKS

REVIEWED FOR MODELLERS

In the Pacific

JAPANESE ARMY AIR FORCE CAMOUFLAGE AND MARKINGS, WORLD WAR 2, by Donald W. Thorpe. Price 54s 6d including postage.

US ARMY AIR FORCES IN THE PACIFIC, by Rene J. Francillon. Price 36s 6d, including postage.

Both published by Aero Publishers Inc, Fallbrook, Calif, USA, and distributed outside the American continent by W. E. Hersant Ltd, 228 Archway Road, London N6.

FIRST of these two new issues from Aero, available from Hersants, is a most superb compilation of material on a subject relatively lightly covered elsewhere; here it is covered exhaustively with masses of colour drawings (122 sample colour schemes and 63 samples of unit markings) plus dozens of drawings, diagrams, and rare photographs. In addition to being a guide to colour schemes and markings, it also has much else of interest including material on organisation and nomenclature. Nothing appears to be omitted—even maintenance stencilling and 'kill' markings are covered in great detail. Anyone interested in modelling Japanese aircraft of the 1939-45 period should on no account proceed further without studying this book first!

The second book is a beautifully produced volume of official USAAF pictures covering the Pacific campaigns of World War 2. Very few have hitherto been published, at least in Britain, and all are without exception of great interest. For the modeller seeking marking or modelling details for USAAF aircraft, this book has much to offer. However, only in a few cases do the captions identify the units precisely and more often the caption identifies a subject more vaguely as being from '311th Fighter Group' (for example) so that the reader needs to do some detective work of his own to find out more. Likewise only occasionally is any comment made on the wealth of varied markings displayed on the machines illustrated, which we found a little frustrating. So in most cases readers wanting to interpret colours, etc, will need to refer to other books like those produced by Aircam or Profiles where similar aircraft are shown in colour.

Camouflage colours

STANDARD CAMOUFLAGE COLOURS, US ARMY ENGINEERS, compiled by Jerry S. Smith.

UNITED STATES CAMOUFLAGE, WORLD WAR 2, compiled by Jay Frank Dial. Facsimile reprints. Price \$3.25 plus 5% postage. Available from J. W. Caler Publications, 7506 Clybourn, Sun Valley, Calif 91352, USA.

THESE very useful publications are basically selected material from World War 2 official publications, reproduced in facsimile but with notes and material of interest to modellers added in each case by the respective compilers. The US Army material is reprinted from FM 5-21, a 1942 publication, and lays down guidance for camouflaging vehicles in the field. Included are numerous drawings showing application of patterns to specific vehicle types, and there is a most useful sheet of colour chips giving actual samples of official US Army colour shades. So far as we know, this is the first time anything official on any nation's military vehicle colours has been unearthed and republished for the aid of modellers. We hope more is discovered. In the case of the US colours, however, the camouflage schemes shown are in some ways academic since the pace of battle was such that there was rarely time to apply elaborate patterns, particularly in the later part of the war, so vehicles more frequently received plain dark green or olive drab. This excellent publication is a 'must' for keen military modellers, however.

The second book is a similar reprint from TO-07-1-1 of 1943, the book which laid down regulations for colouring USAAF aircraft,

while the second part of the book consists of similar US Navy orders relating to aircraft colours. There are numerous useful illustrations particularly good in the case of the US Navy colour schemes, which give the geometric rules, etc, for shading, while actual colour chips are included on the inside covers. This is a very good 'buy' for anyone wanting the basic regulations for US aircraft colours of 1939-45.

Annual offering

LOCOSPOTTERS ANNUAL 1970, by Cecil J. Allen. Published by Ian Allan Ltd, Terminal House, Shepperton, Middx. Price 10s 6d.

THIS well-known annual for 1970 is the work of Cecil J. Allen and includes six articles covering BR 'Britannias', the Japanese Tokaido line, how rails are made, a journey across the Swiss Alps by the Glacier Express, a fine photo feature illustrating pre-grouping expresses and a description of the Canadian National 'Turbo-train'. The 64 pages include a large number of illustrations of which 12 are in colour.

Rail disaster

GRETNA: BRITAIN'S WORST RAILWAY DISASTER (1915), by John Thomas. Published by David & Charles Ltd, South Devon House, Newton Abbot, Devon. Price 30s.

THIS is a dramatic book which describes in detail the incidents leading up to, the aftermath, inquest, trial and lessons to be learned from this dreadful rail accident which killed 227 and injured 246 passengers; 214 of the passengers killed were soldiers en route for Gallipoli. The 143 pages include a notable collection of photographs which only emphasise the tremendous extent of the tragedy and its effect on the lives of the people involved.

In Scotland

THE LITTLE RAILWAYS OF SOUTH-WEST SCOTLAND, by David L. Smith. Published by David & Charles Ltd, South Devon House, Newton Abbot, Devon. Price 50s.

DAVID L. SMITH will be forever remembered for his *Tales of the Glasgow & South Western Railway*—surely some of the wittiest and most entertaining of all railway writings. In this book he has applied his talents to a description of the lines west of Dumfries through Kirkcudbright and Wigtownshire to Stranraer, Portpatrick and Girvan. The book is remarkably comprehensive and the many revelations are a result of the author's personal observation as much as his diligent research. An excellent map, several diagrams and 32 photographs help complete the 228 pages.

Fighter squadrons

FIGHTER SQUADRONS OF THE RAF, by J. D. R. Rawlings. Published by Macdonald Ltd. Price 120s.

SOMETIME in the early 1950s John Rawlings began to gather the material for this mammoth book. One glance at it shows that, like all good books, this one is truly a labour of love. In 555 pages he tells the story of the Royal Air Force's fighter squadrons and illustrates them with hundreds of large beautifully produced pictures. Many of the photographs are truly collector's items, for John Rawlings cast his net wide for nearly two decades. John Rawlings writes a lot about the years he has known in the fighter scene, recalling his memories of the frail biplanes at Biggin Hill and doubtless remembering his own days at Duxford in 1940. Having seen so many of the aircraft of which he writes he is able to draw from personal impressions of them and the squadrons which features are reflected in this beautiful book.

The list of contributors to the volume is almost as vast as its scope. But the one contributor who stands out is the author, particularly where the photographs are concerned since, for many years he has been a regular visitor to the RAF and is one of its most authoritative commentators.

One of the saddest features, however, is the absence of photographs of some of the units. Somewhere someone has a shot of a 157 Mossie in its soot black attire, a Spitfire VI of 616 Sqn, a Defiant of 153. If this book has a message it surely is that every enthusiast should be searching diligently for the photographs to fill the blanks in this, and indeed in some of the pages of Philip Moyes's companion volume on RAF bomber squadrons.

The sheer effort of producing a book this size is tremendous and

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AIRFIX magazine



TWIN MUSTANG

Take two Airfix Mustang kits,
mix well together, to make the
much requested F-82

BY BRYAN PHILPOTT

THE principle of using components from two proven airframes to produce a different type of aircraft was not new when North American turned their thoughts this way in 1943 and produced the XP-82 Twin Mustang. The Germans had already successfully produced the Heinkel He 111Z-1 (subject of an earlier AIRFIX magazine conversion, July 1963) and two Hotspur gliders had also been joined together in England. However, the North American effort was probably the most successful and certainly resulted in the highest production run of over 250 machines.

The Twin Mustang came about as a direct result of a search for an ultra-long range escort fighter for use in the Pacific, and the prototype first flew on April 15, 1945. The first production run of 500 were designated F-82B. But only 20 of these were completed before hostilities ended and the contract was cancelled.

In 1946, two of this batch were modified to the night fighter role where the co-pilot was replaced by a observer/radar operator. Later in the same year a contract was placed for 250 Twin Mustangs, 100 of these being F-82E dual controlled escort fighters and the remainder being variants of the night-fighter version with either SCR 720 or APS-4 radar. By 1950 several units were equipped with this new fighter and some of these were deployed in Japan on the outbreak of the Korean War. The distinction of being the first USAF aircraft to destroy an enemy aircraft in this conflict, fell to F-82G, 46-383, of the 68th Fighter (All-weather) Sqn, 8th Fighter Bomber wing.

Another famous Twin Mustang was F-82B 44-65168 *Betty Joe*, which, piloted by Lt-Col Robert E. Thacker with Lt John M. Ard as co-pilot, flew 5051 miles non-stop from Hickman AFB to La Guardia Field, New York. This was the longest non-stop flight by a propeller-driven fighter, and although handicapped by the failure of 3 of the four long-range tanks to jettison, the flight was made in 14 hours 33 minutes at an average airspeed of 350 knots. This machine is now preserved at the USAF Museum.

The North American method of evolving this aircraft could really be called a full-size conversion, for basically they took two standard P-51H fuselages, added a section aft of the cockpit, used the P-51H outboard wings, and joined the whole lot together with a new constant chord centre-section and tailplane. In many ways their conversion was easier to achieve than ours, for at least they had an accurate prototype from which to work, whereas there is not currently an accurate P-51 variant in kit form.

The Airfix P-51D is now a rather old kit and although in some respects is not too accurate, most of the discrepancies will vanish in the conversion, so it is the basic material from which the Twin Mustang is produced. Commence by joining the two fuselage halves

April, 1970

Above: The basic F-82E Twin Mustang shows in particular the lengthened fuselage compared with the F-51D or H 'single' Mustang. Below: Completed model made from two Airfix Mustang kits, awaits addition of its serial number. Note loop aerial behind port cockpit canopy.



together and when these are thoroughly set, cut off the tail portion 3 1/4 inches from the nose. The F-82 was just over six feet longer than the standard P-51, so a new section made from balsa 1 1/2 inches long has to be inserted. Do this by making the balsa into a plug and cement the two fuselage sections to each end. Leave this to set really hard, then shape the balsa plug to the correct contours. Next, remove the fin and rudder and add a new one, complete with dorsal strake from plastic card. Whilst fitting this fill in the two tailplane locating slots by first cutting off the projection then filling the resulting hole with Humbrol body putty. The new larger air-intake under the fuselage has to be built up by either using layers of body putty or fixing another balsa block, sanding this to shape, then fairing it into the fuselage line with body putty. Detail attention to the air scoop under the propeller, will at this stage pay dividends and greatly enhance the appearance of the finished model. Add cockpit detail to suit your own needs and skills, remembering that the compass loop shown is only in the port fuselage. This completes the fuselage but remember that it has to be repeated twice, once for each fuselage.

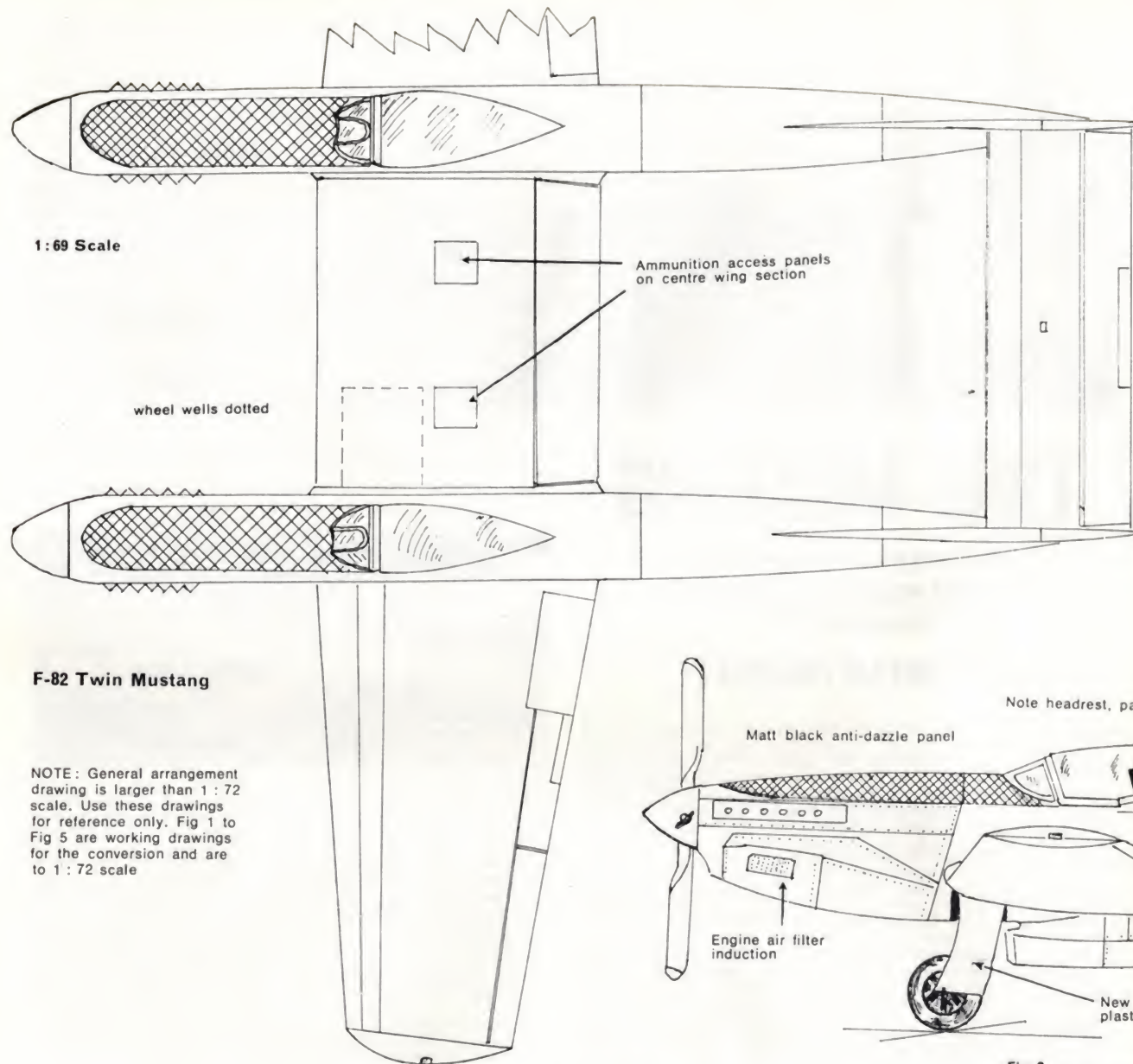
Attention must now be turned to the centre-section. This can be made from balsa or plastic card but an alternative method is to use parts of the discarded wings that will not be needed. To do this, cement together all four wing sections from the two kits. Now take a port and starboard section and measuring 1/4 inches from the wing root of each, cut off the remainder. After cleaning up the cut and ensuring both ends are perfectly square, cement the two together so that you now have an hour-glass shape, shown dotted in Fig 2. When the joint has thoroughly set, cover the whole assembly with thin plastic card but be very careful where you apply cement, as if too much is used on the wing section, the covering will buckle. I joined mine with liquid cement along the leading and trailing edges only. The advantage of this method is that it gives ready-made locating tongues and if done correctly, ensures that the two fuselages will be perfectly square to each other.

The tailplane is quite straightforward and is best fabricated from thick plastic card shaped to aerofoil section. Its location is clearly shown on the drawing and it is best to make it a little longer than Fig 4 to allow trimming for an accurate fit.

The outer wings present no difficulty as they are the same as the

Continued on page 382

Scale drawings on next page



F-82 Twin Mustang

NOTE: General arrangement drawing is larger than 1:72 scale. Use these drawings for reference only. Fig 1 to Fig 5 are working drawings for the conversion and are to 1:72 scale

Remove kit fin and add new one from plastic card

Build up new intake under fuselage to shape shown on main drawing

Cut here and add 1.5/32 inch long section

Kit wing outline drawn solid

Fig 2
Add strip of plastic card to leading edge and file to shape after setting

All drawings 1:72 scale, full-size for model conversion

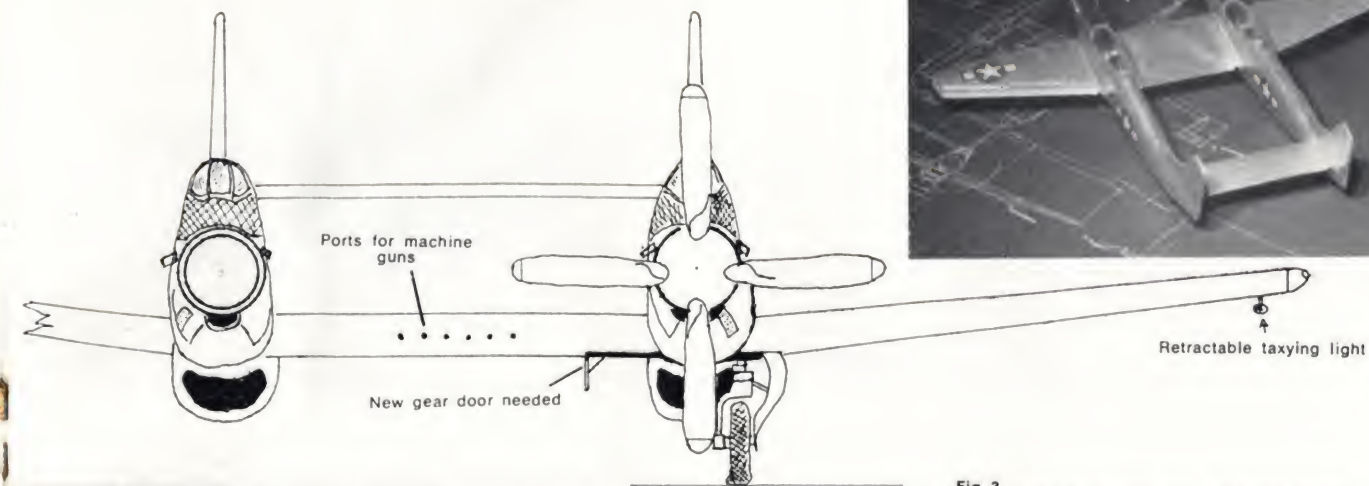


Fig 3
Use two spare off-cuts from discarded wings; cut off 1/4 inch from root and cover in plastic card to make new centre section

Left: Front view of actual aircraft shows to advantage the paddle blade propellers, 'drop tank' type of central nacelle, and bomb and rocket armament.

Below: Excellent flying view of the actual aircraft shows the salient features of the Twin Mustang design and marking positions. Note how anti-dazzle painting differs slightly from that shown on model. Top of page: View of the completed model.

Fig 5
Tailplane from plastic card



Drawings by Bryan Philpott

Twin Mustang—continued

P-51D but with the leading edge straightened out. This is done by cementing a strip of plastic card to each leading edge then shaping it to the required contour. Do not attempt to cut the plastic card to the right shape first, as it is so narrow at the tip end that it will be virtually impossible to cut the strip without it curling. On the other hand, do not cement too wide a strip as it will take some time to trim it to the right shape.

The wingtip is slightly different in outline but this is almost unnoticeable in this scale. The wheel wells must be filled in with body putty but leave the ones in the fuselage halves as they are, apart from removing the solid piece in the middle. The undercarriage from the kit can be used but two new locating holes have to be made just outboard of the fuselage. New doors are made from plastic card, the outer ones being curved over dowl or a round pencil before fitting. The wells extend into the centre-section as shown and it is a simple matter to remove material to achieve this.

Use the two canopies from the kits as these are close enough to the actual aircraft's, but if you are a real stickler for accuracy you have no choice other than to mould two new ones. Final detail, such as aerials, and the six .05 inch machine gun ports in the centre section, should now be added, together with the propellers and spinners from the kit. Most F-82Es carried a loop aerial behind the port canopy and a whip aerial to the rear of the starboard one. Tail wheels from the kit can also be used but add doors for these from thin plastic card. Finding the correct markings can be difficult, but if the prototype is modelled the stars from the kit are suitable, although later on in service, the post war USAF stars and bars were used. Incidentally the fuselage stars are carried on the outside and inside of



Above: The F-82G was the night-fighter version, this example being glossy black overall and carrying a radar pod on the centre wing section. Airframe was otherwise as drawn on previous page (North American Aviation photos).

each fuselage. Overall silver with black anti-dazzle panels would be a suitable finish for this aircraft.

This is basically a simple conversion but there are pitfalls for the younger modeller and it is not recommended as a first attempt, although it makes an ideal follow-up after a simple conversion has been completed, and something a little different is being looked for.

Further reference material can be found in John Taylor's *Combat Aircraft of the World* and William Green's *Warplanes of the Second World War, Vol 4*.

I would like to express thanks to North American Aviation, Los Angeles, for their help in the preparation of this article, and provision of prototype pictures and data.

New Books—from page 378

inevitably the small error creeps in—you have to look very hard to discover any in this book, which surely speaks highly of it. Buy it, costly as it is, for many times you will refer to it. And in so doing turn often to Lord Dowding's Foreword and pause and ponder upon it with gratitude. The great man writes, 'It should never be forgotten in reading this admirable book of reference that it was the gallantry and indomitable spirit of the fighter pilots that prevented any invasion of Great Britain. Without this courage we should now be existing in the position of a defeated nation'. Now Fighter Command and all it stood for is a memory. No greater tribute to its squadrons and aircraft is ever likely to be paid than John Rawlings has done with his brilliant volume.

Aircraft monographs

LOCKHEED P-38 LIGHTNING, by Edward T. Maloney. Published by Aero Publishers Inc, Fallbrook, California and distributed in UK and overseas by W. E. Hersant Ltd, 228 Archway Road, Highgate, London N6. Price 23s 6d.

NO 19 in the series of aircraft monographs from this publisher, is the story of the P-38. As usual the publishers have produced a large number of excellent photographs of both the interior and exterior of their subject which will be of great value to the model maker. All marks of Lightning are dealt with and there are a number of side view drawings in colour together with a three view drawing of the aircraft in the centre pages. This is a well-produced book.

AIRCRAFT AVIATION SERIES, NO 5, NORTH AMERICAN P-51 B/C MUSTANG & NO 7, CURTISS P-40 D-N WARHAWK. Published by Osprey Publications Ltd, PO Box 25, 707 Oxford Road, Reading, Berks. Price 21s each.

TWO more in the now well known Aircraft series of profiles on well-known aircraft. Both books have many photographs and colour side views of their subjects which give a comprehensive coverage of markings and variants. The Mustang book deals with aircraft in USAAF service whilst the Warhawk deals with this aircraft in USAAF, French and foreign service.

M4 models

SHERMAN TANK PRODUCTION MODELS, 1941-45, by Chris Ellis and Peter Chamberlain. Published by Almark Publishing Co, 104-106 Watling Avenue, Edgware, Middx. Price 12s 6d.

SECOND in the new Almarks series, this volume follows the format of the first, with 42 big pictures, about seven pages of draw-

ings in 1:48 and 1:76 scales, plus some detail drawings, and two pages of tabulated data from a total of 24 pages in all. All four sides of the cover have colour art depicting various Sherman models and colour schemes. As its name implies, the book deals only with the basic production models of the Sherman, not with any variants, but it does so in great detail showing each model from the M4 to M4A6 with all production changes recorded. Most models are illustrated by scale drawings by Kenneth M. Jones but the book does not duplicate any drawings already available from Bellona or Profiles, though suitable cross-references are given to these. The main aspects of the 1:48 scale drawings are repeated in 1:76 scale for the benefit of modellers. Text gives a detailed development history of the M4 series and all facts and figures are given in four detailed tables.

German uniform

FALLSCHIRMJAGER, 1936-45, by Peter Stahl.

DIE WAFFEN-SS, by Peter Stahl.

FAKES & FRAUDS OF THE THIRD REICH, by Freiherr von Mollendorf.

All published by and obtainable from Die Wehrmacht, Box 3844, Stanford, Calif, 94305, USA. Price \$4.95 (first two titles, each) and \$2. Postage extra.

THREE books for the enthusiast specialising in German military affairs of World War 2, all are of great interest, the first two titles specially so. These volumes have about 60 pages and eight colour plates which appear to be facsimile reproductions from US Intelligence books of the time, though they could possibly be original artwork. There are numerous line blocks and half-tones in the text and the coverage is most comprehensive in each case. Some of the half-tones are a little murky but acceptable. Of the two books, that dealing with the parachute forces has the slight edge, in our view, both in production and in treatment of its subject. Included, for instance, are drawings and details of many of the aircraft and gliders used by German parachute forces. Our only criticism of these otherwise excellent books is the somewhat crude presentation offered for what is a large sum of money to the average British book buyer.

The third book from this publisher sets out to distinguish the bogus Nazi relics now obtainable (mainly in America and Germany it appears) from the real thing. Written with a deal of both humour and scholarship it makes entertaining reading even if you've never seen a Nazi uniform in your life. It seems that there is now quite a thriving industry turning out everything from SS daggers and drinking cups, to SS tunic buttons, and this book shows the collector how replicas can be detected by their style and marks, etc.

AIRFIX magazine



HMS 'Blake'

MUCH-REQUESTED CRUISER-HELICOPTER

CARRIER CONVERSION

By Peter Hodges

AS the second world war drew to its close, it became clear that the many warships ordered at an earlier time during hostilities would be surplus to the requirements of a peace-time Royal Navy. Consequently, large numbers of ships were cancelled either before their keels were laid, or during an early stage of their building. The classes affected covered the whole range of warships from projected battleships and aircraft carriers to small ships of all types.

Amongst those cancelled vessels were a number of 6 inch cruisers, of which three hulls were well advanced and were not scrapped. They were subsequently to become HM Ships *Tiger*, *Lion* and *Blake*. Compared with the new generation of post-war units, whose outline is a great departure from that of their forebears, the hulls of these three cruisers, and indeed their general layout looks somewhat dated.

BACKGROUND TO THE SHIPS

The final class of 6 inch cruisers stemmed directly from the original 'Southamptons' which, in 1936, introduced the triple 6 inch gun turret into service. These fine vessels, ordered under the 1933 Estimates, were designed to keep pace with the foreign 6 inch gun cruisers being laid down by most of the major naval powers. An extension of the British ships—the 'Improved Southampton' class—survives in HMS *Belfast*, her only sister-ship HMS *Edinburgh* having been lost in 1942.

The future of *Belfast* herself is uncertain at the time of writing, but it is to be hoped that she will be preserved as a floating museum. In the meantime, she remains as the headquarters ship of the Reserve Fleet in Portsmouth. Had she been available it would have been, perhaps, a nice diplomatic move to send her to her name-port of Belfast during the recent Ulster disturbances.

Between 1939 and 1942 a new group emerged, whose general outline—except for their upright funnels—was much the same. This was the 'Fiji' class, but when the name-ship was sunk in 1941, they became known generally as the 'Colony' class cruisers. Various improvements were included in their design, including a square stern, quite different from the earlier form. Indeed so long established was the previous arrangement that it had become known in general shipping circles as a 'cruiser stern'.

Like the 'Southamptons' the 'Fiji' class were designed to mount 12×6 inch guns in four triple turrets, but as the war progressed 'X' turret was removed and close range AA weapons added in lieu

generally in the form of a pair of quad pom-poms side by side. The decision to thus amend the armament was made when later units of the class were in a very early stage of building, and these were, in fact, built as three-turret ships.

Both the 'Southampton' and the 'Fiji' class had large aircraft hangars abreast the fore funnel and carried Walrus amphibians, launched by a fixed beam catapult sited athwartships between the funnels.

When the next class of 6 inch cruisers following the 'Colonies' was planned, the three turret principle was well established; further, the spotter/reconnaissance aircraft had been made obsolete by the advances made in Radar techniques, so that no hangar facilities were to be provided.

The final group was originally known as the 'Minotaur' Class and was to have comprised about twelve ships, but only six were eventually launched. Three vessels were completed as conventional 'three-turret' ships, *Swiftsure* and *Superb* being commissioned into the Royal Navy, and *Ontario* joining the Royal Canadian Navy. The latter ship joined HMCS *Quebec* (ex-Uganda) to give the Dominion a cruiser force for the first time.

Events overtook the other ships, and three hulls remained incomplete for some 9 years after the war, during which time major changes were made in gun mounting design. Eventually it was decided to complete them to an entirely new weapon layout, which will be familiar to the modeller who has completed the Airfix *Tiger* kit.

All three ships ran as conventional cruisers, frequently being employed as flagships, but as the new generation of 'County' class guided missile 'destroyers' came into service, the 'Tiger' class ships, as they had become known, were withdrawn into reserve.

Meanwhile, the need for a new type of vessel—a Command Cruiser—had arisen. This ship was required to have the most flexible capabilities, to include gun fire support for amphibious landings and surface offence/defence; anti-aircraft self-defence by gun and missile; helicopters for A/S work; long range Radars for early warning; and adequate internal accommodation for the administration of a naval force.

To meet these requirements, HMS *Blake* was taken in hand in Portsmouth Dockyard for a complete modernisation. Basically, this involved the removal of the after 6 inch turret and both sided twin 3 inch mountings, and the building of a large flight deck-hangar area extending from the after superstructure to the stern. This arrangement is, in fact, not novel, for the Japanese planned a very similar alteration to their 'Ise' class battleships towards the end of the war in the Pacific, to enable them to carry strike aircraft at the expense of the after main armament.

The result in *Blake* has produced a vessel which looks ugly and hybrid in the extreme, as is often the case when basic designs are radically altered. The forward part of the ship has been largely unaltered, both the centre line 6 inch mounting and the super-firing 3 inch abaft it being retained. Little alteration is apparent in the area of the waist except that the sided twin 3 inch have been replaced by Seacat launchers. Aft this area, however, the structural changes are very great indeed, and the whole outline has been much altered. Quite apart from the flight deck area, a modern-style mainmast structure has been erected to carry the large warning

Continued on next page

HMS 'Blake' — continued

Radar set which features in a number of other classes.

The 3 inch gun is principally an AA weapon, but the 6 inch, for all its calibre, is a dual purpose gun and can be used with devastating effect in either a surface or an AA engagement. Each turret has its own director and fire control system. The 'sided' directors which originally controlled the beam 3 inch turrets have been linked to Seacat missile launchers to provide close-range AA protection.

Having dealt with the background to the 'Tiger' class cruisers, we can now proceed with the rebuild of the Airfix *Tiger* kit. Several parts from the *Devonshire* kit can be used, but these are not strictly necessary, and may be made from scrap.

The work can be broadly divided into three stages:

- The construction of the new Flight-deck/Hangar area with its integral main mast.
- The assembly of the Airfix kit components forward of the waist.
- The final 'super-detailing' of the model.

PRELIMINARY STEPS

Parts 1 and 2: Cement the hull halves together, removing the projecting lugs (which represent fairleads) on the quarterdeck area, and the moulded lower booms on the ships side abreast the main superstructure area.

Part 3: Remove the bollards on the quarter-deck; cut off and retain the liferaft stowages (three to port and six to starboard); cut away the after main deck from abaft the beam 3 inch guns, and file flush with the quarter-deck; file away the deckhouse abaft the after funnel and also the raised parts of the 5 inch gun decks to deck level; file the two 'stretcher' shaped mouldings outboard of the dinghy positions abreast the fore funnel into a square shape of 3 mm side; plug all deck holes except those for 'A' turret and 'Q' (the forward 3 inch); drill the portholes in the main superstructure as shown on the scale drawing; cement the modified deck into position on the hull halves. Fig 1 in the drawing shows the appearance of the quarter deck when these modifications have been carried out.

FLIGHT DECK AREA

This area is most interesting in shape. Firstly, both hangar and flight deck are at maximum beam width. The flight deck edges then run parallel until they reach the quarters where they curve slightly. Meanwhile the quarterdeck beneath tapers sharply towards the narrow stern, so that the rebuilt ship's side between this deck and the flight deck becomes gradually more concave as it approaches the typical aircraft carrier-style flare at the quarters.

I had ambitious ideas of 'framing' up this and plating the frames to follow prototype practice. It soon became clear, however, that this would prove to be very difficult to engineer in 1:600 scale, and I abandoned the scheme in favour of a solid balsa block.

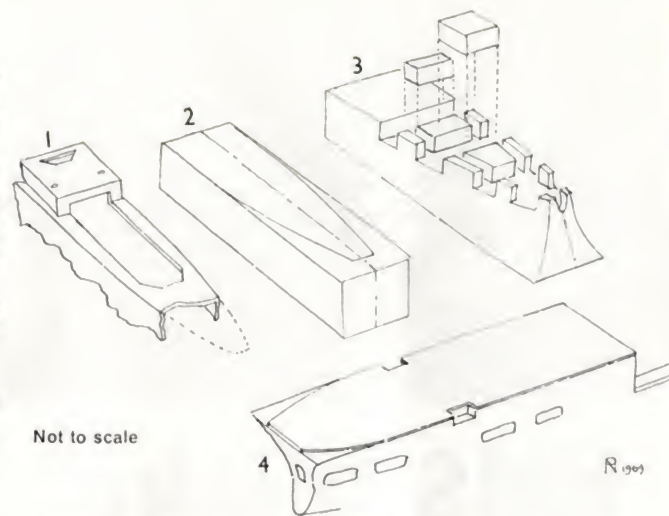
As can be seen from the drawing, there are unusual planes of intersection created by the curve of the flight deck, and the fact that it overhangs the stern. The 'scimitar blade' shape, widening as it draws aft, would be difficult to cut and fit were it to be made from sheet plastic; when the whole structure is built from a balsa block, this plane takes care of itself.

A balsa block 112 mm x 32 mm x 8 mm thick is required. Mark off a centre line right round it, to follow the centre line of the hull and hold it firmly in position on the quarter deck, butting its forward edge hard up to the old 3 inch gun deck. Run a pencil round the contour of the quarter deck to mark the underside of the block (Fig 2) and chamfer the overhang of the flight deck above the stern.

When this has been done, remark the centre line on the chamfered end of the block, and then mark the outline of the flared quarters on it.

Starting from the quarters and working forward, sand away the balsa, deeply concave aft, and gradually easing to a flat surface beneath the hangar area. Leave the complete block slightly oversize at this stage; it will be further sanded down in due course. I used very fine glass paper, wrapped around a small water-colour brush to get the contour right, and the roughing out operation is over quite quickly.

Next, mark out a series of parallel lines on the underside of the balsa, spaced to correspond to the quarterdeck openings, taking



Not to scale

Above: Constructional drawings show stern changes. (1) Preliminary modifications to quarter-deck. (2) Balsa block with quarter-deck outline. (3) Quarter-deck with stern chamfer and slotted areas. (4) Flight-deck—plastic sheet in position on parallel balsa block.

Right: Key to 1:600 scale drawings: (A) Side elevation, with long range Radar aerial on mainmast in sea-stowed position. Normally stowed athwartships in harbour. (B) Plan. Notice main radio aerial connection on centre line of structure abaft after funnel. Dots on Flight Deck lining represent landing lights. (C) Side elevation of starboard superstructure, showing life-raft stowage arrangements. (D) Rear elevation, with pendant number. Number on ship's side should be spaced 6 mm forward of lower booms. (E) Side elevation of foremast, with simplified lattice formation. (F) Front elevation of foremast showing additional arials. Key to scrap sketches: (G) Mainmast, showing twin stays to yardarms and height-finding radar. (H) Flight Control position. (I) After funnel with yardarm. (J) Fo'c'sle area, showing additional fittings and collapsed bipod legs on 'Q' gun deck. (K) Hangar top, with access into foot of mainmast. (L) Bridge with whip arials and extra lockers on flanking deck. (M) Rear of main superstructure with access ladders and pylon on port side. (N) General arrangement of mainmast.

the dimensions directly from the side elevation of the scale drawing. When this is done, file or cut out slots of the correct width and depth, and then cut out the unwanted balsa to give an open effect aft and 'walk-ways' to port and starboard further forward. Fig 3 shows the progress so far. Finally, fill in the forward centre section in the area of the old 'X' gun position as shown above Fig 3.

At this stage, paint the existing quarter deck in 'wood' colour; give the slots in the balsa block two coats of sanding sealer and when dry, paint all the internal vertical surfaces white. When satisfied with the internal paintwork, stick the balsa block to the quarter deck (I used Evostick) aligning its centre line accurately to the hull. Notice at this point in construction, that the flight deck is still parallel throughout its complete length.

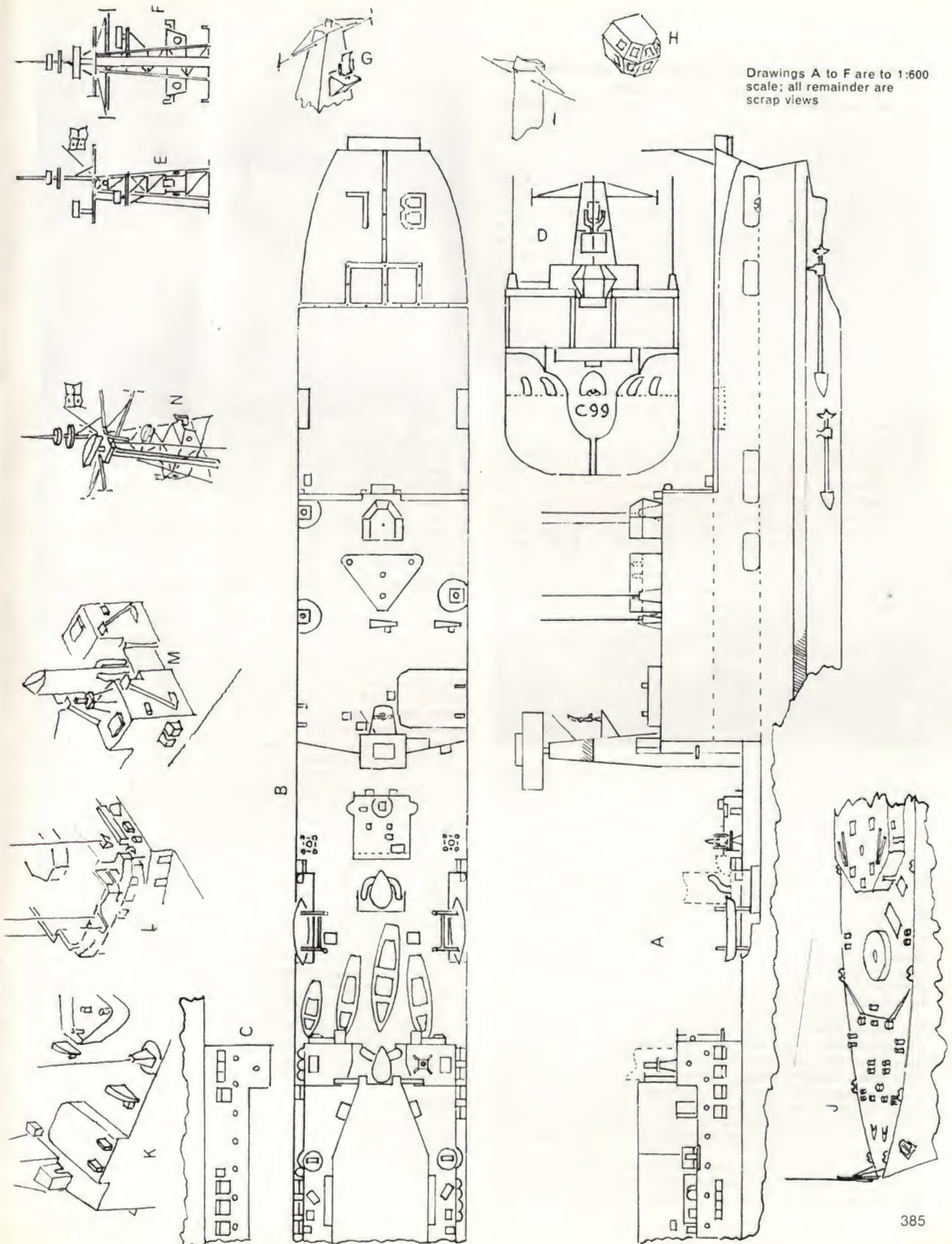
Now, cut a piece of thin plastic sheet to cover the complete area of the flight and hangar decks, again taking the dimensions directly from the drawing. Don't forget to cut out the two shelter pockets to port and starboard just abaft the hangar. Mark a centre line on this, align it to the centre line on top of the balsa block, and cement it in position (Fig 4). If the excess balsa at the quarters is now smoothed away vertically to conform with the contour of the plastic sheet flight deck, the 'scimitar' shape plane of intersection will develop.

The hangar can now be built up. I constructed this from sheet plastic, but it, too, can be made from a solid balsa block if desired. Notice that the forward bulkheads are angled, and that the main mast is set into them, with only a proportion of the mast projecting forward on to the old 3 inch gun deck. Even if balsa is used for the hangar, it would be best to 'plate-in' the angled front faces with plastic sheet.

The mainmast I again made from sheet plastic. There is a projection on its after face carrying a Radar aerial—part 29 of the *Devonshire* kit—and the mast is topped by the large Early Warning

Continued on page 386

AIRFIX magazine



Drawings A to F are to 1:600 scale; all remainder are scrap views

Radar which is part 32 of the same kit; on the port side of the mast there is an access into it from the hangar deck.

A small platform projects from the port angled face of the hangar. On the top of the hangar deck there are several fittings including a triangular shaped platform carrying gun-direction instruments, and four whip aerials, one of which is mounted on a prism-shaped Flight Control position. I made this from a built-up block of sheet plastic but obechi would do as well. Don't try to use balsa, because the wood tends to break up when one tries to achieve the multi-surface shape.

There are two hangar doors which open upwards roller-shutter fashion into trunks on the hangar roof. They are bordered by a sort of 'door-frame' and if the hangar is made from sheet plastic it is, of course, possible to have the doors in the open position. Naturally, this would make it necessary to include some details within, but a good compromise is to have one door slightly raised which is the usual condition when an aircraft is about to land on.

When all this work is complete, go back to the flight-deck area. Carefully cut out slots in the balsa to make the pockets on the deck edge, and then plate them in with tiny scraps of sheet balsa. Undercut the overhanging structure above the stern to accept a piece of sheet plastic cut to the exact shape of the quarters and cement this in position. When all is done, the balsa block can be reduced to its final dimensions. Lastly, build up the pocket across the after end of the flight deck and cement it into position.

All the major rebuilding is now complete, and the rest of the work is largely concerned with detail. Add the four whip aerials on the hangar, together with the main yard and the offset gaff. Amidships, immediately abaft the after funnel there is a new structure with several small lockers on its deck. A Seacat launcher is mounted to port and starboard. These are usually stowed in the vertical position, with the centre boss (which represents the directing aerial) pointing upwards. Seacat launchers are available in either the *Devonshire* or the *Fearless* kit. If you don't wish to cannibalise these kits, use the parts as patterns for making up your own launchers from scrap.

There have been several revisions in the boat deck. The largest motor boat (part 13) is set slightly off the centre line, and is flanked by two smaller boats. Only one of these is provided in the *Tiger* kit, (part 15) so another needs to be filed up from scrap. A Fast Motor Boat (part 14) is set outboard on the starboard side. All these boats are lowered by the original crane.

The whaler davits have been replaced by the power operated pattern, and these are repositioned as shown on the main scale drawing. The davits are available from the *Devonshire* kit, (parts 50, 51, 56 and 57) They need slight modification to their height to make them fit. Again you could use the *Devonshire* davits as patterns to make new ones from stretched sprue.

Both funnels have large up-take trunkings leading into their bases which again can be seen in the drawing. A yardarm extends from each side of the after funnel. Long ladders extend from platforms projecting over the boat deck to higher platforms on the decks where the dinghies were originally stowed. These are no longer carried here, and the space on the port side is taken up by a small pylon structure. Another pair of ladders connects these decks with the after end of the main superstructure at the foot of the foremast. All these ladders and their platforms are best made from narrow strips of thin plastic sheet.

I made up a new foremast complete from extended plastic sprue, but modellers who are less particular may prefer to use the existing kit components. In any case part 50 can still be used, but cut off the athwart ships yardarms and set them slightly lower than the radar aerial platform. As can be seen from the drawing and the sketches, some of the spars in this general area have supporting struts and some have vertical aerials on their tips. A large 'cheese' shaped aerial is positioned on the radar platform and a second smaller aerial platform projects outwards at an angle of about 45° beneath the yardarm array.

Abaft the main aerial is a topmast fitted with a number of complex devices, all best made from plastic scrap. Lower down on each side two further platforms carry small aerials approximately level with



Above: Two close views of the midship changes, Wessex helicopter, and new flight-deck/hangar structure on the author's model. Compare with heading picture of actual ship on page 383.

the fore-funnel. A square section trunking on the forward face of the mast carries cabling to the aerials.

Apart from a pair located on each side, just abaft the whalers, the rest of the life rafts have been positioned on the side of the main superstructure above the gangways leading to the foc'sle. Some are double stowages and some single; note that they are not symmetrical side-to-side. Each side, on the deck above them, there are a number of lockers, and a launcher with a curved shield on its inboard side.

Whilst working on this area, 'plate-in' the rear of the projecting bridge wings with scraps of sheet balsa and cement a plastic sprue strut beneath the wings to support them. The forward item on each side close to the struts represent the navigation lamp.

Three whip aerials rise from the upper bridge level. The outboard units are carried on small wedge shaped supports; the forward one can be cemented onto the existing projection on the forward face of the upper bridge; In front of this 'whip' cement a short stub to represent the D/F aerial.

Little additional work is needed on the fo'c'sle and gundecks. Both turrets can be cemented in place as they are, but add an extra hatch cover on 'Q' gun deck beneath the barrels. Similarly, add a tiny rectangle of sheet plastic outside the moulded screen door on the port angled face of 'Q' gun deck to represent a wooden dumping area for stores. In the area of the breakwater there are some projecting cylindrical trunks and an extra pair of roller-fairleads abreast the cable holders. The moulded lugs on the ships side along the foc'sle deck represent fairleads and should be given a tiny 'V' shaped nick with a razor blade. Twin booms are stowed on 'Q' gundeck, abreast the 3 inch mounting.

In the 'eyes' of the ship, make up a tripod of plastic sprue, and then cement to it a separate jackstaff. Similar work is needed for the ensign staff aft, except that here, the staff fits into a socket in the deck and is supported by removable bipod legs. Both staffs are timber, while their supports are tubular steel. There are fairleads in the quarter deck openings aft, easily made from a scrap of plastic 'nicked' like those on the foc'sle. Separate boat-booms are needed to replace those filed away from the ships side—but remember to paint them before positioning them.

For some astonishing reason, the Airfix kit omits two propellers and their shafts, and these must of course be added unless a water-line model is built. All other assembly follows the kit instructions.

PAINTING

This is naturally the key to the final appearance. It is particularly important to get a good smooth surface on the balsa. The following colour scheme is applicable:

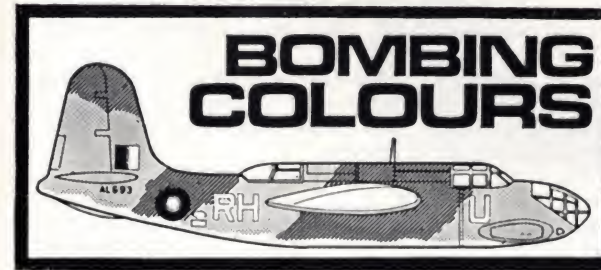
Light Grey: Hull and superstructure; all fittings, mountings, directors, funnels etc, Radar aerials on mainmast.

Continued on page 400

AIRFIX magazine



Above: The prototype Hart photographed on September 25, 1929. Below: The sole surviving Hart, originally a civil demonstration aircraft G-ABMR, marked up as J9933 in 1959 and later re-marked as shown to represent an aircraft of No 57 Squadron. These views show well the metal and fabric areas, the latter being evident from the rib-work of the airframe which shows through the fabric (MoD photos).



Part 13: The Hawker Hart Day Bomber

THE Hawker Hart, which evolved from Specification 12/26 for a high performance day bomber, heralded a new era in British service aviation, for more aircraft of basic Hart design were built between the world wars in Britain than of any other design. Its variants included the Audax and Hector army co-operation aircraft, the Hardy general purpose machine and the Osprey for fleet spotting and reconnaissance.

Although basically a day bomber, it is a fact that the majority of Harts were not bombers at all. To meet the needs of RAF India a general purpose version was produced as the Hart (India); there was the unarmed Hart (Comm) for communications and later came the Hart (Inter) a standard Hart fitted out for training—an intermediate stage of the Hart (T) built as a high performance dual control trainer without military equipment and consequently the sweepback on the wings reduced to compensate for a revised centre of gravity.

For Bombing Colours, only the Hart (DB) is appropriate for this is the version that armed the day bomber squadrons in Britain in the early and mid-thirties. They were built in considerable numbers and, by the sensible custom of the time, production was spread over several manufacturers to keep alive the British aircraft industry. So rigidly were service markings standardised at this time, that only their serial numbers gave the clue to the factory of their origin. These were:

Serial
J9052 (prototype)
J9933-9947
K1416-1447
K2424-2473
K2966-3030
K3031-3054

Builders
Hawker, Kingston-upon-Thames
Hawker, Kingston-upon-Thames
Hawker, Kingston-upon-Thames
Hawker, Kingston-upon-Thames
Vickers, Weybridge
Armstrong Whitworth, Coventry



Serial
K3808-3854
K3855-3872
K3875-3904
K3955-3972
K4437-4495

Builders
Vickers, Weybridge
Armstrong Whitworth, Coventry
Armstrong Whitworth, Coventry
Armstrong Whitworth, Coventry
Armstrong Whitworth, Coventry

Additionally, certain aircraft ordered as Audax were completed to carry out the duties of Hart (DB) aircraft. These were known as Hart (Special). They differed inter alia by a fuselage three inches longer and braked undercarriage wheels. These aircraft, built by Gloster, were numbered K4365-4380, K4390, and K4407-4436.

All the numbers on all Harts were marked in black 8 inch characters, on both sides of the rear fuselage and both sides of the rudder, and underneath the wings inboard of the roundels, reading from the roundel in both cases, ie, one set was up side down relative to the other. The overall colours of the Hart (DB) day bombers were typical of their time. Engine cowlings were polished metal and fuselage and wing fabric coverings were doped aluminium. Coming into service in April 1930 and continuing in Auxiliary squadrons until the late 'thirties, the Hart went through all the national markings changes of the period; the order of the rudder stripes changing to red leading from the fall of 1930 and then the striping being discarded altogether in the fall of 1934. From this same time, on re-doping, the wing roundels

Continued on next page

Bombing Colours—continued

were reduced in size so as not to overlap on to the ailerons.

In service, Harts were usually marked in a manner indicative of their squadron and flight. It had become traditional for bomber squadrons to mark their unit number on the fuselage side, normally in the colour of the particular flight to which they were allocated. Additionally, flight colours ('A' Flight red, 'B' Flight yellow and 'C' Flight green) were painted on the wheel discs and may also have been painted, against regulations, on some spinners.

While representative aircraft for each unit are given by serial number it must not be assumed that a particular aircraft was always identified with a particular squadron, but only that at one period it served with the squadron stated. There was a flow of day bomber Harts from production to the day bombing squadrons in the UK during 1929-1935. Following the Abyssinian crisis in 1935, when Britain was on the brink of war with Italy through the latter country's attack on Abyssinia, Harts were shipped out to the Middle East, some squadrons taking their own, some switching equipment and other Harts going direct from store to equip units on arrival. The crisis over, some Harts were returned to the UK where re-equipment of first-line Hart squadrons with Hinds had started, and Harts were then relegated to auxiliary squadrons. Finally, when war came and the auxiliaries were re-armed, so the Harts were shipped, after slight modification to become trainers, to South Africa, where many were re-numbered in the South African Air Force and had the red in their roundels changed to orange.

Changes of units engendered changes in markings. It was not only the squadron numbers, for in the 'thirties most RAF squadrons were adopting unit crests which were displayed, in general, on the fins of their aircraft. These were regularised from March 1935 when the Office of Chester Herald was appointed Inspector of RAF Badges. In February 1936, standard outline frames for marking these on aircraft fin surfaces were introduced, a grenade shape being allotted as appropriate for bomber squadrons; but by the time these had been introduced most Harts in squadron service had been replaced by Hinds, the next subject in this series.

Markings of Hart (DB) day bombers in unit service are listed by squadrons, those from No 500 upwards being Auxiliary Air Force squadrons:

No 12 Squadron: Known as 'Shiny Twelve' by the immaculate appearance of their Foxes, No 12 Squadron maintained their high standards with their Harts which had highly buffed cowlings. Their unit number was displayed large in flight colours forward of the fuselage roundel and wheel discs were correspondingly coloured. Their foxhead insignia, as illustrated in the March 1970 AIRFIX magazine, was marked centrally on fin surfaces in black. Harts that served in the squadron were: K1419, K1427, K1443, K1444, K1445, K1446, K2427, K2444, K2463, K3005, K3009, K3010, K3015 and K3019.

One of the 'showy' sidelines of this squadron was to have their wheel chocks (wooden blocks used to stay the aircraft while engines were run up) painted in flight colours with the number 12 in white on the facing surfaces.

No 15 Squadron: Re-equipped from Horsleys to Harts in mid-1934. No 15, unlike other squadrons which marked their unit number in Arabic numerals, used the Roman form XV in flight colours. Their aircraft were initially all Armstrong Whitworth-built and the first was collected from the works at Coventry on June 2, 1934. By the following spring



Above: Aircraft of 'Shiny Twelve' in a murky sky which nevertheless shows the positioning of the unit number by the gunner's cockpit, and the size of the disc containing the foxhead insignia on the fin.

the three flights used aircraft as follows:

- 'A' K3040, K3899, K3957 (XV in red)
- 'B' K3038, K3960, K3961 (XV in yellow)
- 'C' K3965, K3969, K3972 (XV in green)

Until February 1936, when Hinds replaced the Harts, K3037, K3846, K3903, K3904, K3964, K3968, K3971 were used as reserve and replacement aircraft and the Commanding Officer used K3900. Harts in 'C' Flight in 1936, the last to be re-equipped, were flown away from Abingdon to No 604 Squadron at Hendon.

No 17 Squadron: A fighter squadron, No 17 used Hart (Specials) K4366-4368, K4373, K4375, K4376 and K4421-4427 temporarily from November 1935 to March 1936 while most of their Bulldogs went to Egypt during the Abyssinian crisis. A Bulldog was retained in each flight for pilots to keep their hand in as fighter pilots.

No 18 Squadron: This squadron re-formed in November 1931 with Harts J9934, K1433 and K1434 arriving ex-No 33 Squadron on the 9th as their initial equipment. Their unit number in flight colours, was marked smaller than standard on their aircraft, but what it lacked in size it made up for in finesse, for it was the only Hart squadron to present its number in stylised form; evidently the squadron boasted a sign-writer among its personnel.

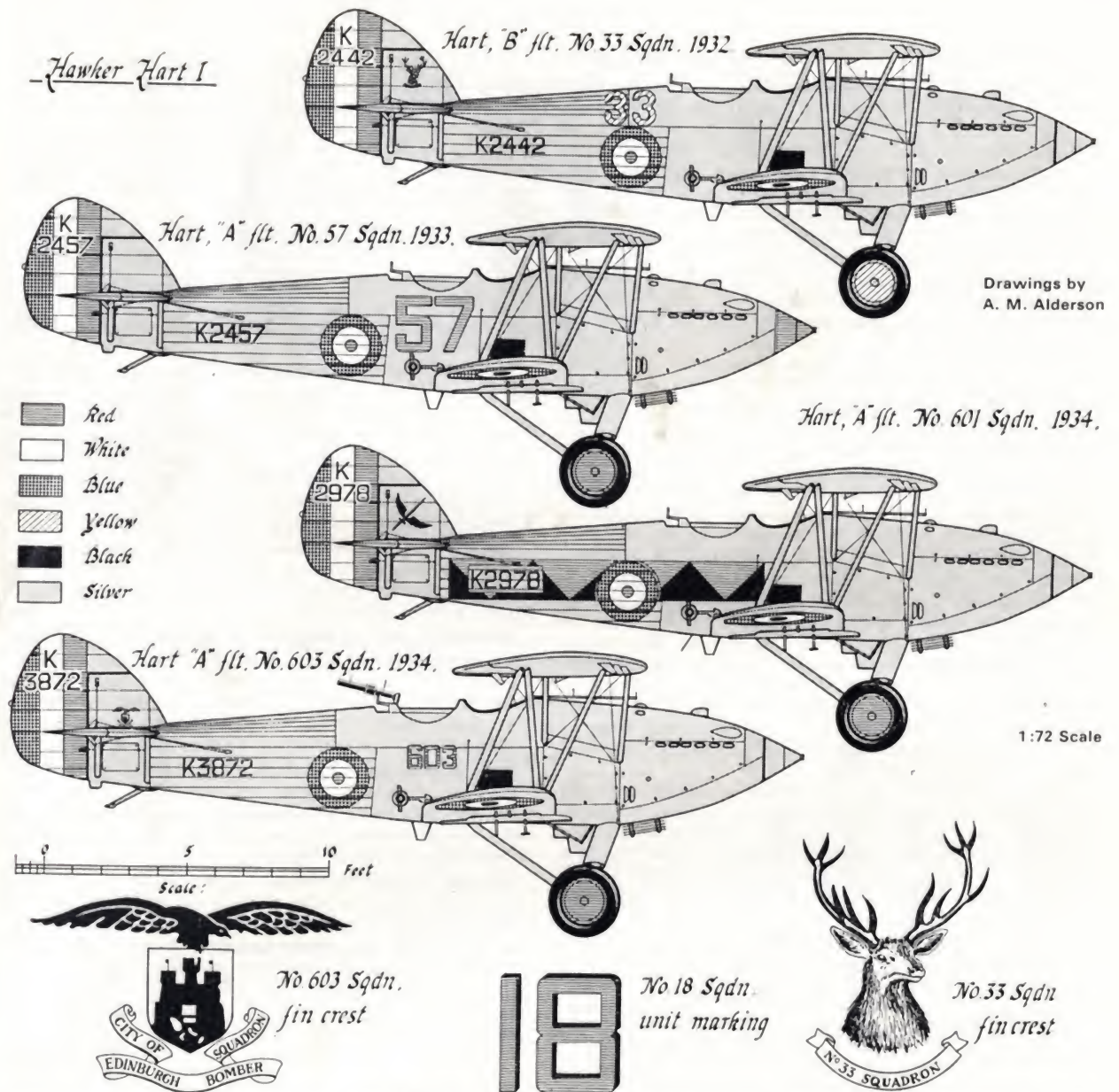
Noting that other squadrons displayed fin crests, No 18's Commanding Officer invited suggestions for a suitable design. It was pointed out that in the first world war the squadron had been the first to co-operate with the Cavalry Corps so that a horse would not be inappropriate and a winged horse more to the point, which is how Pegasus came to be chosen. This motif was marked in a shield form on the fins of their Harts which included J9944, K2432, K2440, K2450, K2451, K2452, K2453, K2462, K2464, K3017 and K3046.

No 33 Squadron: The first squadron to receive the Hart. No 33 Squadron adopted a Hart insignia which appeared on the fins of their aircraft. Presented at first as illustrated, after 1936 the wording 'No 33 SQUADRON' was replaced by the

Below: The unusually large presentation of the badge on the fin and a dark green fuselage decking characterised No 604 Squadron's Harts. Comparing the two pictures it will be seen that when rudder stripes were deleted, wing roundels became smaller, the point being that the 1934 order which affected this was concerned with removing all paint-work from control surfaces, ailerons as well as rudders. Note the chocks resting on the lower wing.



Hawker Hart I



Drawings by
A. M. Alderson

1:72 Scale

unit motto 'LOYALTY'. Unlike the other Hart squadrons, marking unit numbers forward or aft of fuselage roundels, No 33 chose to place it above the roundel. In the case of 'B' Flight, where the yellow did not show up well on the aluminium dope, the '33' was outlined in black.

Their first Harts K9935 and K9937, delivered on February 25, 1930, were the first Harts to enter squadron service; J9938, J9940, J9939, J9934, J9941, J9943, J9942, J9944, J9945, J9946 arrived in the next two weeks in that order.

Harts from J9946 onwards had different flying characteristics due to an alteration of the incidence of the tailplane and a restriction on elevator movement. Since the squadron, by their training, were earmarked as an expeditionary force squadron in the event of an emergency, its J-serialled non-standard Harts were replaced by later standard aircraft. An emergency did come in 1935 with the Abyssinian crisis. The squadron were ordered abroad to the Middle East and under

Above: Drawn to 1:72 scale, these typical Hart finishes will be useful for modellers wishing to adapt the Hawker Demon kit or looking for paint schemes for the older Airfix Hart model.

the overall reinforcement plan nine of the aircraft then held had to be handed over for shipment to Egypt for No 142 Squadron and the remaining seven of their aircraft had to be passed over to their station headquarters at Upper Heyford.

On arrival at Mersa Matruh in Egypt, to patrol the border with Cyrenaica, then an Italian colony, the squadron were provided with 16 aircraft ex-No 142 Squadron: K4447-4456, K4484 and K4491-4495, plus K4475-4476 and K4478-4480 from store on war establishment reserve. In 1936, a flight was despatched to Palestine where Arab-Jew differences were again causing trouble. The squadron remained in the Middle East and in 1939 was re-designated a fighter squadron and re-equipped with Gladiators.

Continued on next page

Bombing Colours—continued

No 40 Squadron: Re-equipping from Gordons to Harts in November 1935. No 40 Squadron is special in that it was the only UK bomber squadron equipped with the Hart (Special) described above. Harts used were K4371-4372 and K4408-4420 delivered from production. These Harts bore their unit number in flight colours just forward of the fuselage roundels. In January 1936, the Harts of 'C' Flight had the figures '40' in the fuselages reversed and a '1' placed in front on becoming the nucleus of the reformed No 104 Squadron on their station—Abingdon. 'A' and 'B' Flights and a new 'C' Flight were supplied with Hinds in the following March.

No 57 Squadron: Reformed at Netheravon on October 20, 1931, after service in the first world war, No 57's first aircraft were four Harts ex-No 12 Squadron. Harts known to have served in the squadron were J9940, J9941, K1422, K2429, K2446-2448, K2457-2458, K2465-2466, K3025, K3032. These bore the number 57 boldly marked forward of the roundel, with the CO's aircraft having the number outlined in white.

In November 1935, the Rolls-Royce Kestrel IB engines in their Harts were replaced by Kestrel X engines, and in March 1936 the 'C' Flight Harts were taken off squadron strength and replaced by Hinds to form the nucleus of No 218 Squadron. This left the squadron with 'A' and 'B' Flights of six aircraft each until May when they were re-armed with Hinds.

No 142 Squadron: Reformed June 1, 1934, the squadron was caught up in the Abyssinian emergency and sent to Egypt with three reserve aircraft plus nine aircraft from No 33 Squadron; while some of its own aircraft went to No 33 Squadron. In November 1936, the squadron returned home and reformed with Hinds.

During their service with the squadron, Harts bore the unit number 142 immediately forward of fuselage roundels. Harts serving the squadron included K3041-3043; K3840, K3842, K3843 and K3894 ex-33 Squadron; K3901 the first Hart to reach the squadron; K3902, K3955, K3956, K3958, K3959, K3962, K3963, K3966, K3967, K3970. (See also No 33 Squadron above.)

No 500 (County of Kent) Squadron: From December 1935, this auxiliary squadron changed its role from a twin-engined night bomber squadron with Virginias, to a single-engined day bomber squadron with Harts. Auxiliary squadrons had a different establishment than regular squadrons and initially for No 500 it was six Harts (DB), one Hart (T) and two Avro 504Ns. In February 1937, the establishment was increased to nine Harts which was met by Harts K1423, K1428, K3018, K3050, K3053, K3816, K3845, K3848 and K4459.

No 501 (County of Gloucester) Squadron: This squadron used Harts from mid-1936 to early 1938. Their Harts were unusual in that their fuselage deckings were painted dark matt green following the pattern set by their earlier Wallaces. Harts concerned included K2438, K2998, K3869 and K3957.

No 503 (County of Lincoln) Squadron: This squadron changed its Wallaces for Harts in mid-1936, using K2428, K2447, K2450, K2457, K3007, K3017, K3023, K3030, K3034 and K3046.

No 600 (City of London) Squadron: Taking over Harts early in 1933 in place of Wapitis, this squadron apparently distinguished their aircraft by an absence of all but the mandatory service markings on K2473, K2979, K2980, K2981, K2982, K2985, K2986, K2987, K2988, K3028 and K3847.

No 601 (County of London) Squadron: When this squadron changed its Wallaces for Harts in early 1933, it continued to mark the unit winged sword insignia on fins, but stopped marking the unit number on fuselages.

In July 1934, the role of the squadron was changed to fighting, but pending re-equipment with Demons, their Harts were bedecked in fighting colours. Harts used were: K2966, K2970-2973, K2976-2979 and K2989.

No 602 (City of Glasgow) Squadron: When No 602 discarded Wapitis for Harts in 1934 they reduced the presentation of the unit number to serial number size, placed beneath the gunner's cockpit. A representation of the unit's tree crest was placed on the fins of their Harts, including K3054, K3866, K3875, K3897 and K3965.

No 603 (City of Edinburgh) Squadron: Changing from Wapitis in 1934, this squadron also reduced the presentation size of the unit number; but in 1 foot digits, beneath the gunner's cockpit, it was larger than the '602' on the other Scottish auxiliary squadron. The unit crest, the castle of the City Arms of Edinburgh under a winged eagle, appeared very small on the fins of Harts of which the squadron used K3052, K3859, K3864, K3872, K3880 and K3898.

No 604 (County of Middlesex) Squadron: As an interim from discarding Wapitis for Demons, in a change of role from bombing to fighting, the squadron used Harts K3893, K3895, K3896, K3969, K3972 and K4490.

No 605 (County of Warwick) Squadron: This squadron's former equipment of Wapitis probably conditioned the unit's fad for having green fuselage deckings when it took over Harts in late 1934. The unit badge, of a bear supporting a ragged staff, was marked very conspicuously on the fin as illustrated. Harts serving in the squadron were K2435, K2439, K2442, K2459, K2465, K2976, K3010, K3018 and K3890-3892.

No 609 (West Riding) Squadron: Formed February 1936, the squadron is known to have used Harts K1426, K3011 and K3839 before receiving Hinds.

No 610 (County of Chester) Squadron: Formed in February 1936, Harts K2424, K2982, K3040, K3054, K3831, K3881 and K4441 are known to have served in the squadron.

No 611 (West Lancashire) Squadron: Formed in February 1936, Harts K3817, K3819, K3851 and K3852 were collected by the squadron from Sealand in January 1936 and, in addition, K3029, K3044 and K3881 are known to have served with the squadron shortly afterwards.

Bruce Robertson



The new Hawker Siddeley Buccaneers being supplied to the RAF have an additional bomb door fuel tank which will increase the normal internal capacity by 425 gallons. This extra fuel is carried without any loss in weapon carriage capability. The new bomb door fuel tank is clearly visible in this photograph. The door still revolves, the tank rotating inside the fuselage so that the four 1,000 lb bombs mounted on the other side of the door are exposed for delivery.

AIRFIX magazine

SEVEN WEEK



Part: I Prussian Infantry

THE middle of the nineteenth century was a time of great military activity: the Crimean War, the Indian Mutiny, the American Civil War and the Franco-Prussian War all took place between 1850 and 1871. But there were other, smaller wars—less important militarily, but interesting to the military modeller and war-gamer. The Seven Weeks War of 1866 brought all the armies of the German states out to war for perhaps the last time as separate armies.

The war will be dealt with in detail in the final article in the series with especial emphasis on the wargaming aspects of the campaign. The two main contenders were Austria-Hungary and Prussia and they and their allies will be identified by (A) or (P), a convention I propose to use for brevity throughout the text.

In 1866, German military uniforms had reached the 'modern' tunic and trousers stage, though the equipment and headgear was sometimes more Napoleonic in style.

Prussian infantry in 1866 wore the 'waffenrock' or tunic, piped in red down the front, and on the pocket flaps at the rear. The tunic colour was dark blue (Humbrol HM.12) for Line Infantry, Foot Guards, Grenadier Guards and the Guard Fusilier Regiment; for Light Infantry (Jaeger and Schutzen Regiments) the tunic was dark green (4 parts Humbrol HM.13 to 1 part Black).

The regimental and rank identification is shown in Fig 1. Non-commissioned officers had a broad strip of lace in the regimental button colour round the cuffs, and all except lance-corporals had lace round the collar. Officers wore shoulder-

boards in silver cloth with gold pips and numbers (and gold braiding for Majors and above). Officers of Guard Regiments had no numbers.

Trousers were grey (1 part Humbrol 27 to 1 part Black) with red piping down the seams. Webbing equipment was black for Fusiliers (Line and Guard) and Light Infantry; White for Musketeers and Grenadiers of the Line, Foot Guard, Grenadier Guard and Guard Fusilier Regiments. Ammunition pouches were black leather, packs were hide or black leather (both were to be seen) and the blanket roll was grey as were the trousers. The blanket was worn by officers and men alike; the 'ends' could be at the left shoulder or right hip.

The basis for my 1866 Prussians was the Airfix 1914 German Infantry, although the officers and musicians came from the Airfix Russian Infantry, since they offered a ready-made blanket roll and 'different' positions. The helmet worn by the Line and Guard Infantry was slightly taller and much rounder than the 1914 model, but the generous allowance for the helmet cover on the Airfix figures makes it much easier than it at first seems. The Light Infantry shako can be more easily 'carved'; if desired, the Confederate Infantry can be used instead of the Germans (my Light Infantry bugler came from the Confederate Army).

The '98 Mauser carried by the Airfix Germans needs only the magazine removing to become a good replica of the Dreyse breech loader. Officers carried a gold-hilted sword, in a steel scabbard with brass fittings; the sword had a black 'cord' with a silver knot at the end. On the oppo-

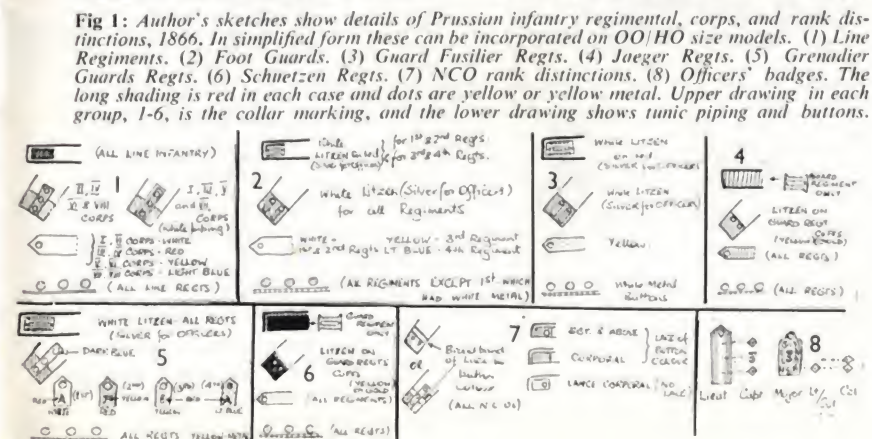


Fig 1: Author's sketches show details of Prussian infantry regimental, corps, and rank distinctions, 1866. In simplified form these can be incorporated on OO/HO size models. (1) Line Regiments. (2) Foot Guards. (3) Guard Fusilier Regts. (4) Jaeger Regts. (5) Grenadier Guards Regts. (6) Schutzen Regts. (7) NCO rank distinctions. (8) Officers' badges. The long shading in red in each case and dots are yellow or yellow metal. Upper drawing in each group, 1-6, is the collar marking, and the lower drawing shows tunic piping and buttons.

site side, ie, the right, a Dreyse pistol was carried in a black holster, butt foremost.

Helmet and Shako emblems are shown in Fig 2. The 'Line' Eagle was worn by all Light Infantry of the Line and Line Infantry, the Guard Eagle by Guard Infantry, the Guard 'Star' by Guard Light Infantry and the Landwehr Cross by the Landwehr (Active Reserve) battalions of the Line and the Guard, who differed from their Regular comrades-in-arms by the wearing of a Light Infantry shako of the earlier type, somewhat taller and more cylindrical, covered in the field by a black waterproof cover. (All helmet fittings were yellow metal: the spike had a 'four-leaf clover' base.)

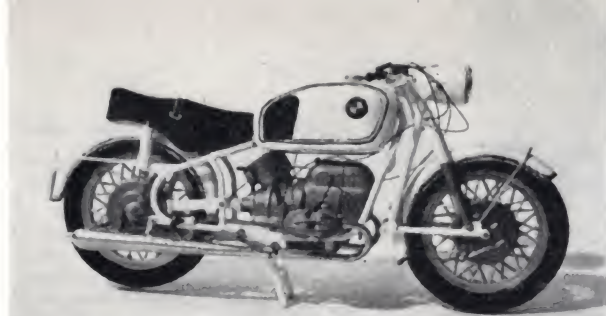
Musicians were recognisable by the 'swallows nests' worn on the shoulders—red with white lace and fringe. They marched into battle with their units, though in action only the drummers and buglers were retained in the firing line to relay commands. Equipment was white, including drum aprons. Drums were of yellow metal casing with the hoops painted with red and white diagonal stripes, and white cords. Light Infantry buglers had black 'swallows nests' laced in red, and were the only musicians in the Light Infantry to go into action: bugles were brass, with red/white twined cords. Fig 2 shows typical Prussian infantrymen in campaign dress, and an officer wearing 'parade' dress.



Fig 2: Sketches of Prussian Infantry uniforms. (1) Private of Line Infantry. (2) Guard Fusilier Musician with 'swallow nest' epaulettes. (3) Officer (parade dress) of Guard Infantry. (4) Jaeger (Light Infantry) Private. (A) Helmet badge, Line Regts. (B) Helmet badge, Guard Regts. (C) Landwehr shako badge. (D) Guard 'Star' shako badge (Guard Jaeger Regts).

Right: Officer of Line Regt in campaign dress, made from Russian officer, and Jaeger (Light Infantry) standard bearer from Japanese standard bearer. Included in heading group, right, is the standard bearer and a Jaeger musician. More Prussian figures will be shown next month.





BMW R69S

A. R. Vernon converts the Airfix R69 motor cycle kit

Above: A relatively easy conversion, with new tank, detail amendments, and added control cables makes an impressive addition to a motor cycle model collection, the BMW R69S, also shown in the other views on this page. Note the prominent air filter behind the engine.

THE recent Airfix BMW R69 is an excellent kit and with a few modifications can be converted to the more modern R69S or the famous (and fearsome!) Rennsport racing machine, making an excellent companion model for the basic R69 model. Starting with the unassembled kit, make up the engine but discard the air filter; remove the 'L' shaped breather pipe and, after boring a hole in line with the original position but 5 mm away on the left hand crank case half, replace with a slightly curved pipe 7 mm long and 2 mm thick. Use heat-stretched sprue to make the new pipe. The air filter is replaced by a scratch built one made from card wrapped to form a cylinder (fig 1), though you may have dowel or plastic rod of suitable diameter.

Missing from this model is the engine sump plate; follow the dimensions of Fig 2, using plastic card, and glue into place beneath the engine. Then continue assembly as per instructions up to Stage 11. The standard petrol tank is often replaced by a larger capacity one on the R69S, depending upon the needs of the individual owner. Sizes range from four gallons to a mammoth seven gallons. Using balsa wood, I scratch built a five gallon tank for my model. Dimensions are shown in Fig 33A.

Before attaching the petrol tank a telescopic steering damper may be added, affixed between the lower front fork yoke and the top frame tube. Using the box illustration a fair replica can be manufactured from sprue and rolled card. The headlamp on this model is just too small to look authentic. Purists may care to carve a new

one (or build up the original with body putty) to a length of 18 mm and a diameter of 15 mm.

The exhaust system on the full-size BMW, viewed from the front, leaves the cylinder at a distinct angle. The plastic used for the model is soft enough to be carefully bent to the correct shape. A balance pipe is fitted between the exhaust pipes just behind the sump; sprue thinned to the correct diameter can be used to simulate this.

The silencers on the model can be easily



modified to resemble the Hoske replacements for the factory 'quick rust' ones. Cement together the silencer halves and when dry cut off the rear 10 mm. Make a cone from rolled paper 70 mm long, with largest diameter 9 mm and smallest 4 mm. Glue the plastic end on to the cone and the result is quite authentic.

The engine and wheel hubs should be painted to resemble unpolished alloy. A mixture of matt grey and silver is effective. Silver is used for various 'chromed' areas; the box illustration is an excellent guide and also shows plug leads and control cables. The cylinders, for the lower 6 mm only (the length of the push rod tunnels) are painted gloss black.

A final touch could be the handlebar end spherical 'winkers' fitted to home market machines only, as German law requires all vehicles to have direction indicators. Clear sprue can be used, sanded and polished to shape with a touch of orange paint on the inner ends before cementing into place. Frame colour, tank, mudguards, etc, are left to individual choice. My model is painted in typical colours, gloss white overall with black lining. If you do not have a fairly steady hand, however, do not attempt the lining—it's tricky.



Above: This superb hand made 1:48 scale model of the Bristol Fighter is the work of reader G. A. Elsmore and is one of numerous models to this scale exhibited in Mr. Elsmore's mobile model aircraft exhibition which is devoted to the biplane era, 1910-38. The museum, which depicts the theme 'Best of the Flying Years', was last year in Weston-super-Mare where it will again be on show this coming summer. Aside from the models—all hand made and complete in every detail—there is a big collection of relics, pictures and paintings relating to the epoch. Venue is Dolphin Square, Weston-super-Mare from August to October next. Admission 1s. 6d., children 9d., RAFA members half-price.

AIRFIX magazine

NEW

KITS AND MODELS

FROM TAMIYA

LATEST 1:35 scale kit to reach us from the Tamiya range is the M41 Walker Bulldog, not exactly a brand new kit, but the old Walker Bulldog so extensively 're-worked' as to be virtually new. Detail has been sharpened up and also added and the model now matches the highest Tamiya standards. In usual Tamiya style, there is a brilliant instruction sheet complete with scale drawings and historical notes in addition to very clear assembly diagrams and sprue charts. Track is the new style moulded type similar to that in the Aurora kits, and very realistic. Power comes from two U11 batteries (not supplied), with a ready assembled gearbox and power train in traditional Tamiya form. Highly commended, this kit can be had from the usual big model stockists including Jones Bros of Chiswick who supplied our review sample. It costs 25s 11d.

Second 1:35 scale kit to reach us has been on sale for a couple of years but has not been reviewed by us until now. This is the Tamiya M4A3E2, the so-called 'Jumbo' heavy assault version of the Sherman which was produced for the invasion of Europe in 1944. Basically a M4A3 with added armour and a new turret, the kit portrays very well the massive appearance of the actual vehicle. There are only a couple of minor reservations. First of all the real M4A3E2 had grousers permanently fitted to the tracks, and Tamiya's model has standard M4 tracks; secondly the model M4A3 has a 76 mm M1A1C gun in the M62 mount as normally fitted to the standard M4A3 (76 mm). This is an anomaly difficult to explain. As built the M4A3E2 had the 75mm M3 gun in a distinctive bevelled mount. In service, however, several were fitted with M1A1 76 mm guns (as in the kit but without a muzzle brake). It may be that other vehicles were fitted with M1A1C guns and mantlets as in the kit, though we have never yet come across evidence to confirm this. Be that as it may, it is a simple matter to alter the gun and mount in the kit to one of the known variations. Grousers would be more difficult to simulate, but not impossible. This kit was again supplied for review by Jones Bros of Chiswick who hold stocks. It costs 31s 6d, postage extra. C.O.E.

OLD TIMERS

ERNEST BERWICK Ltd, 11a Newland Street, Kettering, Northants, have sent us two old Frog kits not widely available now, but of which they still have stocks. First is the Fairey FD 2, one time air speed record-holder and worth a place in any collection of representative British aircraft. This is a simple kit, neatly moulded though with rather a lot of flash. Price is 4s 3d and this may be your last chance to get this now discontinued kit. Second kit is the Gannet AS4, presented in the short-lived Frog 'Attack' series. The somewhat elaborate pack has several useful features including a paint brush, phials of paint,

and lead weights for the nose—a very handy item for this particular tail-heavy model. There is also an instruction booklet which includes historical notes and pictures. The kit itself is accurate and well worth getting if you are a naval aircraft fan—though we suppose there is a chance that this old kit may well be re-issued later on in the current Frog series. Meanwhile if you don't want to wait and see, take your chance now and buy while stocks last. Price 4s 3d, postage extra. C.O.E.

NEW TRANSFERS

THE prolific Almarks concern have issued several new transfers covering both aircraft and tanks. In the military series comes an excellent sheet for Wittman's famous Tiger in its markings for both the Russian Front and Normandy. In theory these are applicable to the Airfix Tiger, but considerable conversion work is necessary to be strictly accurate on this point. The Airfix model depicts the final production Tiger and Wittman's Tiger was the early production model with different wheels and different cupola. However, even if you do not feel up to converting the Airfix kit, the very useful 'extra' of Zimmerit anti-magnetic coating also included on the sheet can be used for any Tiger model in this scale. Price is 5s 9d. Second sheet of tank markings is a selection of numbers and emblems applicable to the M3 Lee/Grant kit produced by Airfix. No particular units are indicated but the markings cover British 8th Army, US, and Russian (Lend-Lease) vehicles. In fact the WD numbers provided appear to be to both 1:35 and 1:76 scales, the latter on a second sheet. Though there is no 1:35 scale Grant as yet, the numbers would obviously be useful, suitably rearranged, for 1:35 scale Shermans. Price 5s 9d. Also in the military category comes a second sheet of self-adhesive flags, this time for the

Union forces to match the Confederate flags (American Civil War) already available. These are for standard bearers and flag posts with 20 mm (HO/OO) scale figures like those made by Airfix and others.

The newest batch of Almarks aircraft transfers include one sheet of Luftwaffe fighter Gruppe markings and another sheet of Staffel markings, all in white, black, red, and yellow. Next comes a most useful sheet of assorted RAF markings, mainly fin striping in various widths and styles (wartime and post war) plus 'P' prototype symbols, RAF kill and mission tallies in assorted styles, and miniature Czech and Polish emblems for RAF wartime aircraft manned by crews from these countries. Price of each of these sheets is 3s 9d. Finally comes the latest in the 'Special' series, markings for three specific RNZAF aircraft, namely a post war Mustang IV, a wartime Corsair, and Fiskens' famous P-40 Wairapapa Wildcat. This sheet contains complete markings, all applicable to the appropriate Revell or Airfix kits. A full instruction sheet, with colour scheme drawings and details, is included. Price 5s 9d.

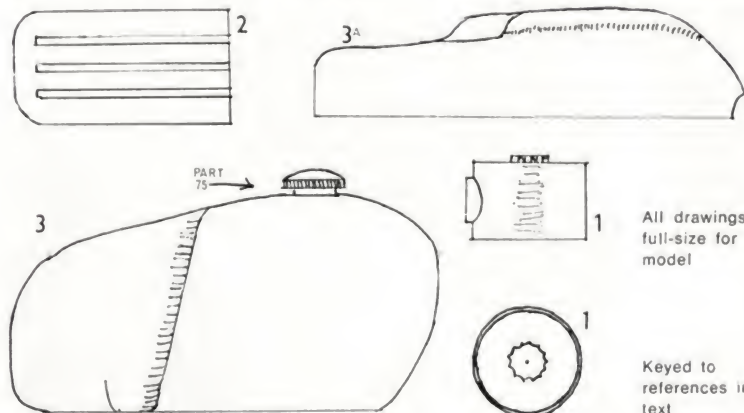
From the American firm of AIR Decals comes a sheet of colourful markings for three Liberators, featuring a B-24J The Dragon and his Tail, 5th Air Force, another gaudy B-24J Tunaro, 8th Air Force, and a B-24M of the All Weather Flying Centre. A very comprehensive instruction sheet comes with the set but the sheet does not include national insignia. All these transfers are applicable to the Airfix Liberator and the sheet can be had in Britain from BMW Models Ltd of Wimbledon, price 18s 6d, postage extra.

Micro Decals, Martin Krasel Studios, Culver City, Calif, USA, have also sent us their latest releases. Two of the new sheets, Nos 53 and 54, are devoted to Luftwaffe 'aces' and feature the personal markings and other necessary markings for specific aircraft flown by famous pilots. Hartmann, Von Werra, Nowotny, Wick, Molders, Bar, and Galland are among those included and the markings are applicable to the various Airfix/Revell/Frog models of Me 109s, Fw 190s, and Me 262s now on the market. No national markings are included unless these differ from those in the kit. Sheet 55 is a similar set of British and Commonwealth 'ace' markings, including Fiskens' Wairapapa Wildcat, Caldwell, Deere, Finucane, Bader and Tuck, plus others. Finally No 56 covers US 'aces' including Bong, Kepford, Boyington, and McGuire. All these latter are for appropriate Lightning/P-51/Corsair kits, etc. The standard of printing and production of all these Micro Decal sheets is high, superb in terms of registration and fine detail. On all sheets, however, some of the markings are larger than the stated 1:72 scale and, indeed, some seem nearer 1:48 scale. The Wairapapa Wildcat is a case in point where here the blue of the roundels is 'as new' also. Inspection is advised before

Continued on next page



Models by John Turner show the Airfix Kittyhawk (with lengthened rear fuselage) as Wairapapa Wildcat, and an Airfix Corsair in RNZAF markings, utilising the new Almarks RNZAF transfer sheet.



All drawings full-size for model

Keyed to references in text

New Kits—continued

purchase, but if you collect larger scale models you could well find some markings which you could use. We must stress that most are fine for 1:72 scale, however.

All these Micro Decal sheets cost \$1.50 in USA, but can be had from Modeltoys and BMW Models in Britain at 15s per sheet. C.O.E.

FROM STOPPEL

THE latest set of Stoppel decals is of Canadian markings. In Sheet No 43 in this series both fuselage and tail markings are supplied in various sizes. Both the old and new Canadian tail emblems are provided as are the early and more formalised maple leaf national insignia.

This is yet another in a first rate series of transfers but unfortunately the review sample had the red slightly out of register. Nevertheless, this sheet will be of considerable interest to the growing number of modellers who are including Commonwealth aircraft in their collections as the roundels vary in size from $\frac{1}{4}$ to $\frac{1}{2}$ inches in diameter. Modeltoys of Portsmouth and BMW of Wimbledon both hold stocks of this sheet and can supply by post, price 5s. A.W.H.

TAMIYA MATRA

FROM Argyle Models Ltd of Glasgow, we have received Tamiya's latest car kit, the French Formula One contender, the Matra MS 11. This is in the Tamiya big scale series of 1:12 and allows more scope than the small scales, so the Japanese firm has spared no effort in getting this car accurate.

As far as we can see, every item on the prototype is reproduced in this kit, including the disc brake calipers, spark plug leads, brake fluid pipes, coolant pipes, fuel injection pipes, in fact the lot. When the box lid is lifted one is very impressed; the various parts, nearly 200 of them are pre-coloured or chromed as appropriate. The small items on the car needing paint are indicated in the parts section of the instructions. The driver who is moulded in white plastic can be treated to produce a miniature Jackie Stewart or J. P. Beltoise, again details are included.

The model has working suspension of open coil springs and dampers, these latter complete with plungers as per the prototype; rack and pinion steering is controlled by the steering wheel and is motorised. The electric motor and its gearbox is contained within a perfect replica of the Matra V-12 engine with the rear wheels driven by correctly jointed half shafts. The batteries are housed in a separate compartment in the nose and are easily replaced from underneath; the control switch knob is also under the car and out of sight. The batteries are the only items not included in the kit.

Tamiya must also be complimented on the assembly manual. There are notes on the prototype's history, then a numbered sequence of assembly—all in clear and concise sketches, with no text to suffer misinterpretation. The back pages itemise every part as it is arranged on the sprue. Where the chrome has to be removed for cementing this is shown tinted, altogether a considerable improvement on some kit instructions.

The two wheel halves join perfectly, but there is a small amount of play between



Above: Latest release from Rareplanes is their most ambitious yet, the Beechcraft 17 biplane which should please fans of 'thirties aircraft. Now made in thicker plastic than previous kits, drawings are given in the kit for two alternative versions, either the round-the-world floatplane G-ADLE or a US Navy JB-1 landplane. These kits are for experts only, since they require a degree of skill to complete, and spare parts from other kits must be utilised for detail like wheels and propeller. Price of the kit is 10s 6d plus 1s postage from Rareplanes, 18 Hillford Place, Earlswood, Surrey. The floats are extra at 3s, but these can be purchased separately by anyone wanting Edo-type floats for other conversions. These latter items are easy to assemble, being moulded in two halves each.

boss and carrier which allows the whole wheel to wobble slightly. Presumably this is inevitable in plastic and does not show when the car is propelled. This is just about the one minor criticism possible in a virtually perfect kit.

The amount of detail included on the model is truly amazing by any standard and even though some of it is hidden when the model is complete, it is a satisfaction to the perfectionist to know it's there. Price of the kit is £3 19s 11d. A hand-made metal model to the same perfect standard would cost fifty times more. B.L.

RATIO COACH KITS

JONES Bros of Chiswick have sent us a review sample of one of the new GWR 4-wheel coach kits produced by Ratio Plastic Models. There are three types in this range; all third, brake third and composite. The composite as illustrated has four compartments; two first and two third class. We were very impressed by the accuracy and precision of this all-plastic kit. The sides are moulded in light grey plastic and include every possible detail such as door and grab handles, panelling and ventilator louvres. There is even a representation of the projection on the side of the door where the carriage key is inserted to lock the door. The instructions are more informative than some of the earlier Ratio kits and there is even a little prototype information. The fit of the parts is, however, so good that there is little chance of going wrong and in a number of cases key marks giving guidance are moulded on the plastic parts. The completed model is beautifully smooth and free running thanks to the pinpoint bearings and the fact that each pair of plastic wheels have been moulded complete on their axle. Stepboards, brake shoes, gas



Above: One of the new Ratio OO gauge GWR coaches as reviewed above. It comes in kit form.

and vacuum cylinders, 'V' hanger, buffers, vacuum pipes and even a tail lamp are included amongst the detailed parts of which all the underframe, roof and body ends are moulded in black plastic to minimize painting. A working model Tri-ang type coupling is included. All three kits can be supplied by Jones Bros of Chiswick, the brake third costing 24s 3d and the other two kits costing 21s 8d each plus postage and packing. N.S.

ROSE MODELS

MENTION is made in Roy Dilley's article this month of the Rose Models head, needed for one of his conversions, and illustrated on page 371. The Rose range has long been considered among the best of the quality lead figures, though not reviewed in these pages before. However, several major model shops are now stocking Rose Models, and one of these, Oxford Model Centre, 94 St Clements, Oxford, has sent us a review sample from the range. This particular item is a kit for a German Panzer Grenadier of World War 2 vintage. Made of excellent quality lead, it has a much more shiny finish than most metal figures, and the casting is extremely sharp and well sculpted. To 54 mm (1:32) scale, the kit is basically very simple, consisting of the base, complete body and head, and two separate arms which 'plug' to lugs at the shoulder. The figure is hatless and running, and the two arms are each carrying an ammunition box. There is a bandolier of ammunition slung round the neck, the figure obviously depicting one member of a MG 34 machine gun team. Finishing is simply a matter of filing odd parts (though hardly any is needed) and cementing together with UHU or similar adhesive. Slight variation is available by adjusting the arms, and obviously it would also be possible to remove an ammunition box from one hand and replace with a gun. Price of this figure is 23s (unpainted) which is high but reflects in the quality offered. The Rose Models range is vast, depicting figures from just about every period from Ancient Egypt onwards. Another big feature of the range is the availability of the heads, arms, and other parts as spare items at reasonable prices. These are invaluable for conversions as Roy Dilley demonstrates in his article. The complete Rose Models catalogue lists everything and can be had from Oxford Model Centre at 2s post free. C.O.E.

FROM HINCHLIFFE

WE illustrated one gun (and its limber) from the Hinchliffe range last month. Another sample we've had for review is the French Gribeauval 8 inch Howitzer. This is to 1:32 scale, suitable for 54 mm figures like those made by Historex—and of the Historex Napoleonic period in this case. Made entirely in cast metal, the fine detail on this model is quite remarkable. Assembly follows the style of the actual gun with carriage, wheels, axle, and barrel all as basic parts. Very complete instructions are provided. What is really good is the provision of perfectly fabricated drag chains, clamps, buckets, rammers, handspikes and so on, all most realistic. Building is very easy, aided by the clear instructions, and a colouring guide is also given. Price of the kit is 50s 9d and it can be had (postage extra) from Hinchliffe Models, 83 Wessenden Head Rd, Meltham, Huddersfield, Yorks. C.O.E.

AIRFIX magazine

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SHEET No. 3 1/72 scale

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56-3000 "Triple Zilch", 20th TFW Wethersfield, U.K. circa 1960

55-3712 "Pahokee Tiger" 307th TFS. 31st TFW, Vietnam, late 1965

55-3604 416th TFS, 31st TFW, S. Vietnam, late 1965

"Charlene", 31st TFW, S. Vietnam, circa 1968. (Camouflaged)

Also available in 1/72 scale . . .

No. 1 Six alternative finishes for the BAC Lightning in RAF service

No. 2 Three alternative finishes for the McDonnell Phantom

NOTE: All Modeldecals sheets contain full markings to complete all models listed, except sheets Nos. 1 and 2, where the "D" type roundels are used from the respective kits.

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13. Nakajima Ki-43, Hayabusa I-III in JAAF, RTAF, CAF, and IPSF Service.

51. Battle of Britain Special, featuring Spitfire, Hurricane and M.E.Bf109E. 17 colour pages in all.

MODELDECAL—THE FINEST! Judge for Yourself



Above: Frog/Hasegawa kit finished as F-100D "Pahokee Tiger", 307th TFS, 31st TFW, Vietnam, late 1965. Model by R. L. Ward of Modeldecals.

An illustrated instruction sheet, giving decal locations and full colour scheme details, is included with all Modeldecals

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Letters to the Editor

LEM details

I HAVE recently purchased the Airfix LEM and I have a few suggestions to make that might be of interest to readers.

The guards on the front stabilizing rocket motors should be facing inwards not downwards, as depicted in the plans, to protect the windows, and should be painted matt black.

To make the lunar module itself look more realistic I have added gold paper to the bottom half and the legs.

The paper should be slightly crumpled, and I have found that the paper off Bournville plain chocolate is the best. The white backing paper should be left on as this gives added strength.

The gold paper should be applied to the body with impact adhesive. For the legs, the paper is cut into strips and glued on as it is wrapped around. The inside only of the landing pads are covered, but I have found it is best to paint them.

David Ewart, Salford, Lancs.

I HAVE just finished making Airfix's first step into space, the Lunar Module. It is truly an excellent model and well worth its cost. After studying pictures of the Eagle on the moon, I found that the descent stage was covered in gold coloured foil, and parts 44-45, 50-51 and their opposites were covered in aluminium foil. For modellers who wish to make their Module more authentic, I referred to the colour pictures of Eagle in a *Sunday Times Colour Magazine*. The gold foil obtained, from chocolate wrappers, is put on the descent stage in sections using a strongish glue. The aluminium foil is put on before adding the small rocket pods. As a protective coating I used Airfix clear varnish on the metal. The model is then ready for painting.

Austin Fears, Leicester.

Uniform detail

REGARDING Mr Rust's letter in the January issue concerning the Airfix Waterloo Cuirassiers, I would like to point out two errors. The first of these is that the Cuirassiers were issued with red plumes in 1804, the year they were formed, not in 1805 as stated. The second, more important error was that the red plumes were discarded in 1812 to be replaced by a small flattened disc in squadron colours. Therefore Airfix were correct in omitting the plumes from their models.

James Docherty, Clydebank, Glasgow.

Eagle ships

NAVAL wargamers will be grateful to John Crane (October issue) for his interesting information on the 1-1200 scale ships planned by Eagle shortly before the firm ceased production. Amongst my friends, rumours have been rife both as to what Eagle did or didn't produce, and also what was the fate of their moulds after 1960. As far as the latter are concerned, several dealers have told me that Pyro Plastics bought all the Eagle equipment but I have failed to confirm this despite letters to Pyro in the United States and to an associated company of Eaglewall Limited.

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.

As far as I can tell, Eagle's last model was of the *Gneisenau*. A friend obtained one of these three years ago; I have the packet which is plastic of the Airfix type, rather than the box with the familiar Eagle symbol. A Portsmouth wargamer also has one.

The absence of British firms producing either 1:1200 or 1:250 scale ships is sad indeed. Despite John Crane's enthusiasm for 1:600 scale ships, few wargamers would contemplate using such large ships. Eagle certainly had the right idea, producing all the ships of a particular action, eg, the Battle of Narvik, Hunting the *Bismarck*, The Battle of the River Plate, but perhaps lost their appeal by failing to produce advertised models, and by repeating identical kits in boxes of different names. Thus all the *King George V* class of battleships were being produced, many of the *Leander* class of cruisers and many of the 'County' class—but the kits did not show the differences which actually existed within the class.

Dinky Toys ships of this scale were not produced again after the last war; Triang-Minic produced some nice World War 2 and post-war ships but have discontinued them; Pyro produce but four models in 1:1200 scale. So we naval enthusiasts turn reluctantly to expensive metal models, from Germany and the United States, and a visit to a British model shop can never be as exciting as for tank and aircraft enthusiasts.

Barry J. Carter, Portsmouth, Hants.

Wheel treatment

OTHER 'kit bashers' may care to try those methods of giving a shabby look to the undercarriage struts and tyres of heavily used wartime aircraft. Give undercarriage members a coat of Household brand aluminium paint (available from Woolworths) and, when the paint is not quite dry, dab the components very lightly with soot. When spread with the finger the soot—it can be applied with a piece of paper or a small brush—imparts a dirty, 'smoky' appearance, which looks much more convincing than bright, spotless aluminium.

For tyres, give a coat of ordinary matt black and, again when the paint is not quite dry, roll the tyres back and forth in a shallow bed of fine sand or gravel. The minute particles which adhere can then be spread around the tyre, giving a well used look. Any larger particles must be picked

off, leaving a light, dusty covering. This treatment may be necessary more than once and it is best to have the undercarriage assembled at the time.

I tried these methods on an Airfix Stirling of 7 Squadron at Leeming in 1940, and the effect is quite startling.

Brian Redhead, Northallerton, Yorks.

German Army '14-'18

I WAS greatly taken with the articles on the German Army of '14-'18' published last year in the magazine. The information on equipment was especially useful.

With regard to cavalry lance-pennons, my sources of information differ in the following respect:

Baden: red over yellow
Mecklenburg: yellow over red initially as Prussia, but later blue over yellow
Brunswick: white over black; unter-offizieren (sergeants) black eagle on white flag. The form of the eagle was 'wings folded' for line regts., 'wings spread' for Guard Regts.

The line regiments mentioned by Mr Nash in the Cavalry articles are given numbers, but no 'States'. These are as follows:

Chevaulegers: 1st to 8th Regts (Bavaria)
Hussars: Guard and 1st to 16th Line Regts (Prussia), 17th (Brunswick), 18th, 19th and 20th (Saxony).
Uhlans: Guard and 1st to 16th Line Regts (Prussia), 17th and 18th (Saxony), 19th and 20th (Württemberg), 21st (Saxony).
Dragoons: Guard and 1st to 16th Line Regts (Prussia), 17th and 18th (Mecklenburg), 19th (Oldenburg), 20th, 21st and 22nd (Baden), 23rd and 24th (Hesse (Darmstadt)), 25th and 26th (Württemberg).

The Regimental Colour given for the Uhlans Regiments is applicable only to the 'Shoulder Straps'. The remainder of the piping is as follows:

1st Guard Regt—Red (White litzén)
2nd Guard Regt—Red (Yellow litzén)
3rd Guard Regt—Yellow (White litzén)
1st to 8th Line Regts—Red
9th Line Regt—White
10th Line Regt—Carmine
11th to 16th Regts as given for 'Shoulder Straps'
17th to 21st Regts as given for 'Shoulder Straps'.

Buttons were white-metal for 1st Guard, 3rd Guard, 5th, 6th, 7th, 8th, 13th, 14th, 15th and 16th line Regts, and the Saxon and Württemberg regiments—yellow metal buttons were worn by the 2nd Guard and 1st, 2nd, 3rd, 4th, 9th, 10th and 11th and 12th Line Regiments.

Robert C. Gibson, Wirral, Ches.
David Nash writes: Mr Gibson's letter contains some very useful information which was omitted from my series because of the limitations of space. He also corrects an

AIRFIX magazine

error to which I must plead guilty.

The lance pennon of the Mecklenburg cavalry was indeed yellow over red; this was identical to that carried by the Badenians, and not the Hessians as shown. My description of the Baden pennon is confirmed by both the 1912 War Office Handbook of the German Army and Jürgen's Uniformen des deutschen Heeres im Juli 1914. The practice of embellishing pennons with state arms for senior NCOs was instituted in 1889. All states were subject to this practice and a few are listed below:

Baden: White bearing a black griffin and arms
Mecklenburg: Yellow with the Mecklenburg arms
Brunswick: Blue over Yellow with a red shield bearing a white crowned horse.

In addition to Mr Gibson's list of states and regiments it is perhaps worth noting that the two Bavarian Uhlans regiments were numbered independently 1 and 2.

Mr Gibson's main point is regarding the piping colours of the 'ulanki', in which he is quite right. The guard and line regiments 1-8 had scarlet piping and were not as I have intimated on my list.

May I take this opportunity of saying that in a series of short articles, not every aspect of German uniforms could be covered. The one which really stands out is the shoulder strap piping of the infantry which does not show the actual regimental colours, and the other is buttons, generally referred to as white or yellow metal. This latter omission, Mr Gibson goes a part of the way to rectify. The main point of the series was to provide details sufficient for modellers to paint and convert the Airfix 00 scale figures. Thus the more minute aspects of detail, which cannot be shown on models anyway, are the first to be omitted when it comes to condensing a very vast subject into a very small space.

For rail fans

RECENTLY in AIRFIX magazine's 'Letters to the Editor' page there have been pleas for 1:48 scale models, AFVs, and modern warships. I should like to put in a word for the modern image railway modeller. There are those of us who are more fascinated by a diesel at the head of a train of blue and grey carriages than by the sight of a 'Patriot' at the head of a train of crimson carriages, although such people are in a minority and are mainly the younger modellers who have never seen a steam engine.

Rising prices are forcing less fortunate modellers to give up the hobby and 'modern image' modellers figure among these in increasing numbers all the time. Triang, admittedly, make a Hymek priced at 69s 11d and a Co-Co priced at 67s 6d but these are ridiculous compared with 50s for a 'Britannia', 17s 6d for a N2 tank loco, and 40s for a black 'Princess' with new body and new tender.

The Airfix diesel railbus and Drewry shunter were motorised in their thousands as modellers found a quick, useful and, more important, a cheap way of enlarging their stud. However Airfix thought it right to remove the railbus from their range. Steam enthusiasts obviously did not really notice its departure and heralded the arrival of two more steam locomotives in 1969 with great joy and busily motorised them. How about the same for the diesel fans? An English Electric Bo-Bo Type 1 or 2, a Clayton Type 1 Bo-Bo, or even a 'Warship' would please many of us. A K's 4-wheel motor bogie with plastic side-



Above: Line up of superbly detailed bus models made by D. G. Wilks, with a matchbox to give idea of size. Unfortunately the original colour picture Mr Wilks sent us does not take kindly to black-and-white reproduction here.

frames would give a good-looking diesel engine for about half the price of the diesels available in the shops. To do this to the model 'Warship' would cost about 55s. Not much, you may say, laughingly, but the Trix 'Warship' diesel costs 122s, and 93s 11d in kit form. A 'Western' diesel made this way would cost 60s, the Trix model costing 122s and 93s 11d in kit form. The C-C bogie would be represented by the K's 6-wheel motor bogie.

A model like this would have less moving parts than 'Evening Star' for example, although some way would have to be found to allow the bogies on the static model to swivel. Perhaps there could be an adaptation of the method used by K's in their diesel car, so as to make conversion to the motorised type easier. Thus one could have a train double-headed by one motorised diesel pulling a weighted un-motorised one and the carriages.

K. I. Toomer, Coventry.

Useful paint

I READ the articles on painting and converting wargame figures with great interest, especially the recent exhaustive treatment of uniforms of the Panzer Divisions. I would like to pass on my method of painting plastic figures (and indeed all model soldiers from Historex to 54 mm metal figures).

I use Pelikan Plaka water paints as advertised by Ernest Berwick, but as these are water paints an undercoat is essential. For this I use Dulux White undercoat which when dry will cheerfully accept any water paint.

I am sure that any newcomers to Plaka will be very pleased with the subtle effects possible with these paints and the way in which even the very smallest detail can be easily painted.

Below: You too can have a model like ours; Adrian Balch converted the Airfix Catalina to PBY-5A, L-853, of 721 Sqn, Royal Danish Air Force, following Alan Hall's article in our July 1969 issue. The actual aircraft are now all out of service. Bottom: Also from Adrian Balch comes this view of an Airfix Hercules finish in CAF colours and markings, 435 Sqn.



photoPAGE

More rare pictures from readers with captions by Michael J. F. Bowyer. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.



Above: (1) From P. A. Ruff comes this excellent view of Vickers Virginia J7719 which was flown by Wing Cmdr Stent, CO of No 9 Sqn in 1932 at Boscombe Down. For colour and historical details see our December 1969 issue. Mr Ruff sent more Virginia photographs of this period, unfortunately not clear enough for publication.



Above: (2) A fine view of Hawker Hector K8114, silver overall, of No 13 Sqn, in 1937 at Odiham. (3) Not a well-known type, though it would make a splendid model, is the Meridionali RO 43 floatplane, shown in Italian Air Force markings in about 1937-38. Serial is MM 27037 and the machine is silver overall with black underside to main float. Pictures by D. Millett.



Above: (4) Also from Mr Millett comes this close view of the 13 Sqn badge on the tail of Hector K8114 shown in picture 2. (5) From Leslie Hunt comes this good view of a captured Ju 52 at Knocke in 1945, possibly the same aircraft as was illustrated in our December 1969 issue. The swastika on the tail is painted over and a very small RAF flash applied. Beneath the wings is a very small RAF roundel.

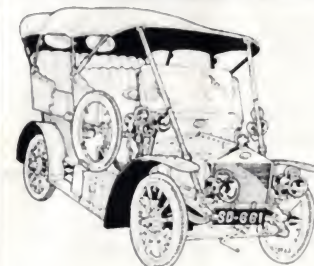


Above and right: (6) An excellent view of a Gloster Gauntlet II of 17 Sqn at Kenley in 1937 in silver with black squadron markings. Picture by Leslie Hunt. (7) Gloster Gamecock J8074 at Upavon in June 1929, apparently a No 3 Sqn machine. Serial is in white outline on the fuselage stripe. (8) Cant Z 1007 Bis 'Alcione' belonging to the 16° Stormo, 50° Gruppo BT, 210° Squadriglia, photographed at Manduria airfield, on return from a raid on Tà Venezia airfield (Malta) on May 9, 1942, and after engagement with the fighters of the island. Note that the port engine is damaged and lacks the propeller and a blade of the centre propeller is also damaged. One tyre is punctured. The aircraft came home on a single engine. Camouflage was dark green with grey undersides. Picture by Guiseppe Ghergo.



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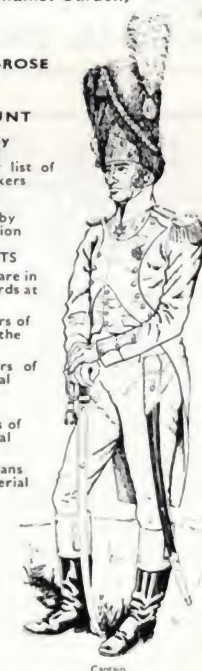
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HMS 'Blake'—from page 386

Dark Green: All decks, including director platforms, except flight deck.
Light Green: Top of starboard cable holder; starboard navigation lamp.
White: Bollards and fairleads on deck edges; muzzles of guns; life raft stowages; fore topmast; fore-mast radar aerials and yards; upper surface of fore radar platform. Canopies of motor boats; all boats beneath their waterline; radar aerials on front face of directors; semi-circular areas at base of whip aerials on flight deck, and around main roof connection abaft after funnel; jackstaff and ensign staff supporting stays; flight deck markings and letters.
Black: Funnel caps; foremast and cable trunkings between funnel top and radar platform; upper surfaces of main mast; gun barrels; hull of all boats except the Fast Motor Boat; bridge windows; windows of Flight Control position; Seacat missiles; boat topping; pendant numbers.
Red: Pyramid shaped bases of whip aerials on hangar deck; main roof connection on deck of structure abaft after funnel; locker on starboard edge of flight deck; port navigation lamp; top of port cable holder; noses of Seacat missiles.
Light Brown: Rectangular areas abaft 6 inch turret on foc'sle deck; decks of boats; quarter deck, ensign and jack staff; booms on the ships side abreast the main superstructure.
Dark Grey: Flight Deck; rotor blades on helicopters.
Dull Red: Hull beneath boot topping.
Bronze: Propellers.
Yellow: Seacat launcher aerials; upper fuselage of helicopters; tips of rotors
Dark Blue: Helicopter fuselage; hull of Fast Motor Boat.

The lining of the flight deck marking can be quite easily achieved by using thin strips of Sellotape. Stick down two parallel strips, leaving a narrow gap between them and stencil with white paint. When dry, peel off the Sellotape and a dead straight line will be left. Alternatively, Blick dry print strips may be used. When the lining is complete, make a series of dots with a hard pencil on the white lines to represent the landing lights.

When they become available, HMS Blake will be equipped with Sea King helicopters but in the interim she carries four Wessex. This aircraft is available in both the Devonshire and the Fearless kits. I slightly modified mine, by removing the rather unsightly representation of the undercarriage and rebuilding better components from sprue and scrap. I also thinned down the main rotor blades which are a bit lumpy. Helicopter blades have a marked droop when they are stationary and, this is easily done by slightly bending the blades downwards.

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The code letters on the Flight Deck are Yeoman $\frac{1}{8}$ inch transfers. These are over-thick and need to be carefully trimmed. In addition, the letter B should be made squarer in shape. All this is best done with a new razor blade before the letter is cut out of the sheet. This gives the extra advantage of removing the unwanted reflective surface of the backing. The scale drawing shows the position and shape of the letters. Again Blick lettering can be used, both for these code letters and for the pendant numbers.

One word of explanation. To avoid unnecessary clutter in the main drawing, I have omitted some of the standard kit components—which should be placed in position following the kit instructions. For example, the funnel outlines are shown dotted on the side elevation but the additional exhaust trunkings leading into them have full lines. Similarly, neither the Seacat directors, nor their supporting structures are shown, but must be included in the model.

Finally, add draught marks by a series of tiny white dots on each side of the bow midway between the anchor and the breakwater; and also on each quarter above the after screws. Terminate the marks at the boot-topping.

My own model is in the 'entering harbour' state. The jackstaff has been rigged, ready for the Union Flag when the ship is alongside, while a White Ensign flies from the ensign staff on the Flight Deck. A Rear Admiral's flag flies from the gaff on the foremast. (At sea, the White Ensign is normally flown from the off-set gaff on the mainmast). On the fore port yardarm is the International Code signal giving the ship right-of-way in Naval ports. This is the Code Pendant over pendant Zero. On the fore starboard yardarm is a Naval signal—the 'Designation' pendant over flags S R J, showing that the ship will be berthing at South Railway Jetty in Portsmouth Dockyard.

Though Part 3 of 'Wehrmacht Markings' was promised for this issue, we have, in fact, switched it with the article featuring HMS Blake which was originally scheduled for next month. This has been done to make best use of available space in our somewhat crowded schedule. 'Wehrmacht Markings' will appear next issue.

AIRFIX magazine

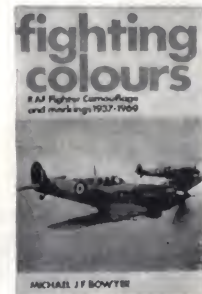
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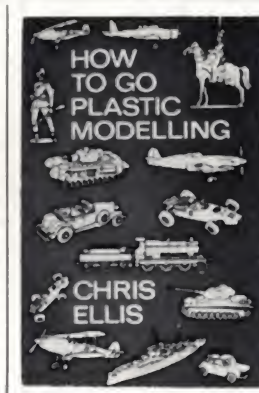
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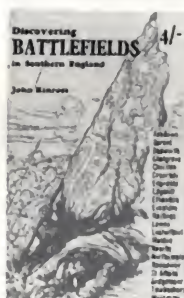
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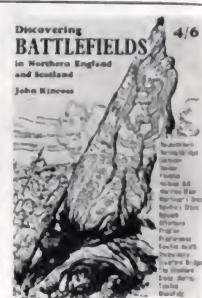
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